COVIDIEN

ForceTriad Energy Platform

- Customer Support
- Calibration Procedure
- Troubleshooting
- System Service
- Periodic Safety Check

Troubleshooting & Service Guide

Exit

Covidien Customer Support Contacts

Worldwide Service Centers

Click on a region of the map below.

se visit the Covidien Service website
the most current contact information

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Covidien Customer Support Contacts

North America & Canada

North America

Call the Service Department:

Tel: 1-800-255-8522, press 2
Fax: 303-581-6724
E-mail: valleylab.technicalservice@tycohealthcare.com

Call Customer Service:

Tel: 1-800-722-8772
Fax: 1-800-544-8772
E-mail: valleylab.customerservice@tycohealthcare.com

Canada

Tyco Healthcare Canada

7300 Trans Canada
Pointe-Claire, Québec
H9R1C7
Canada
Tel: 514-695-1220 x2248
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Covidien Customer Support Contacts

Central America & South America

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Kendall de Mexico, SA de CV
Calz. Ermita Iztalpalapa 1514
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Fax: 52555 685-1899

Panama, Costa Rica, Guatemala, Honduras, El Salvdor, Nicaragua

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50 St. Floor 23
Panama City, Panama
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Fax: (507) 264-6717

Kendall de Costa Rica
La Uruca 75 Metros al Oeste de Faco
Contiguo a Motopartes, Oficentro La Virgen Edificio
San Jose, Costa Rica
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Colombia, Venezuela, Ecuador, Peru

Kendall de Colombia
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Bogota, Colombia
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Fax: (571) 619-5425

Brazil

Auto Suture do Brazil
Ave. Nacoes Unidas 23013-A
Sao Paulo, Brasil 04074/020
Tel: 55 11 5548-3550
Fax: 55 11 5548-3549

Chile, Argentina, Uruguay, Paraguay, Bolivia

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Vitacura 2736 Ofic. 501
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Tel: (562) 231-3411
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Fax: 54114 815-2244

Puerto Rico

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Covidien Customer Support Contacts

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Covidien Customer Support Contacts

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Mar Roukos
Delwane Metn
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Damascus Road - Hazmieh
45-308 Beirut - Lebanon

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Tyco Healthcare – Saudi Arabia
c/o Saudi Import Company (Banaja)
PO Box 567 Riyadh 11421
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Tyco Healthcare (Pty) Ltd.
379 Roan Crescent
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Covidien Customer Support Contacts

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UK Customers
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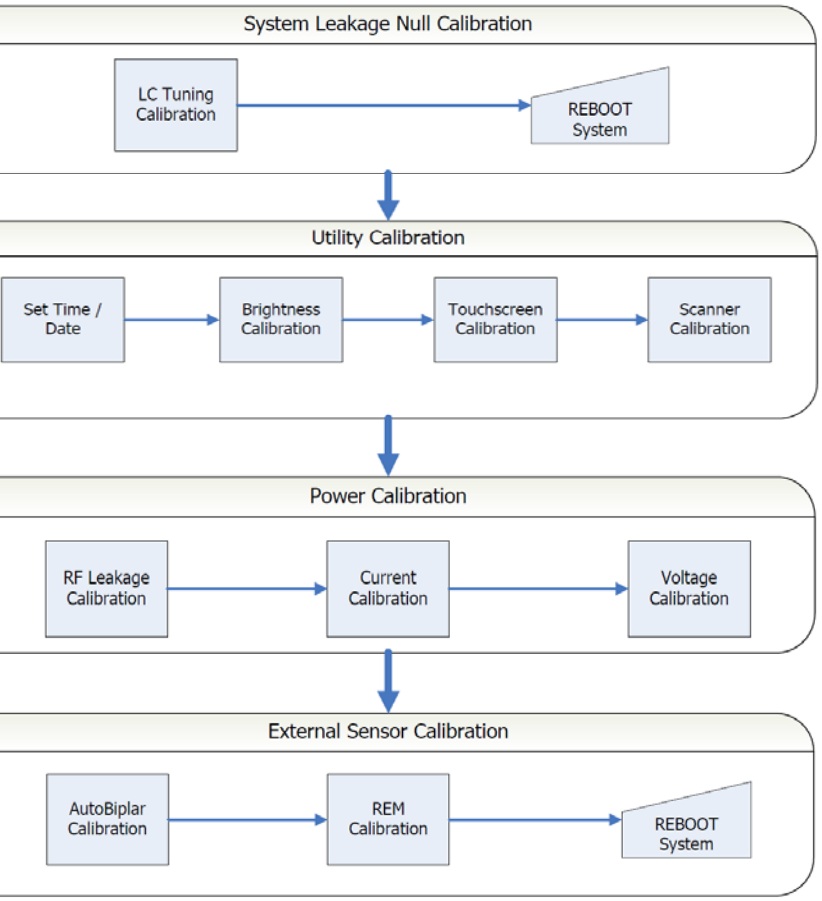
Calibration Procedure

ALIBRATION PROCEDURE DEFINITION

he calibration procedure has been broken down into four different areas of calibration. The different calibration areas egregate the full calibration procedure into smaller, more manageable calibration sections. These sections are then elected based on the service performed. Additional information can be found by clicking on the flow chart below.



The different calibration levels defined below are the **MINIMUM** requirement of level of calibration to be performed. Ultimately, a full, level 6 calibration is preferred for all levels of service work completed.

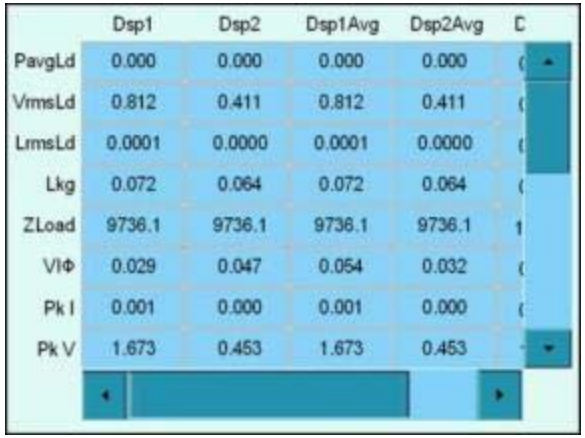
The full calibration procedure definition, including a step-by-step procedure, can be found in the ForceTriad Service Manual. The information found in the Calibration Procedure section of this guide is for reference only.

Calibration Level Definition	
Calibration Level 0	No Calibration Required Periodic Safety Check Required
Calibration Level 1	Scanner Calibration
Calibration Level 2	System Leakage Null Calibration
Calibration Level 3	System Leakage Null Calibration Utility Calibration
Calibration Level 4	Power Calibration System Leakage Null Calibration
Calibration Level 5	Power Calibration External Sensor Calibration System Leakage Null Calibration
Calibration Level 6	Full Calibration Required

System Leakage Null Calibration

The System Leakage Null Calibration process consists of adjusting the LC Tuning on the system. This is accomplished by using the equipment outlined below and using the touch screen menu navigating to the calibration section.

Main Menu → Service → Diagnostics → Debug Mode



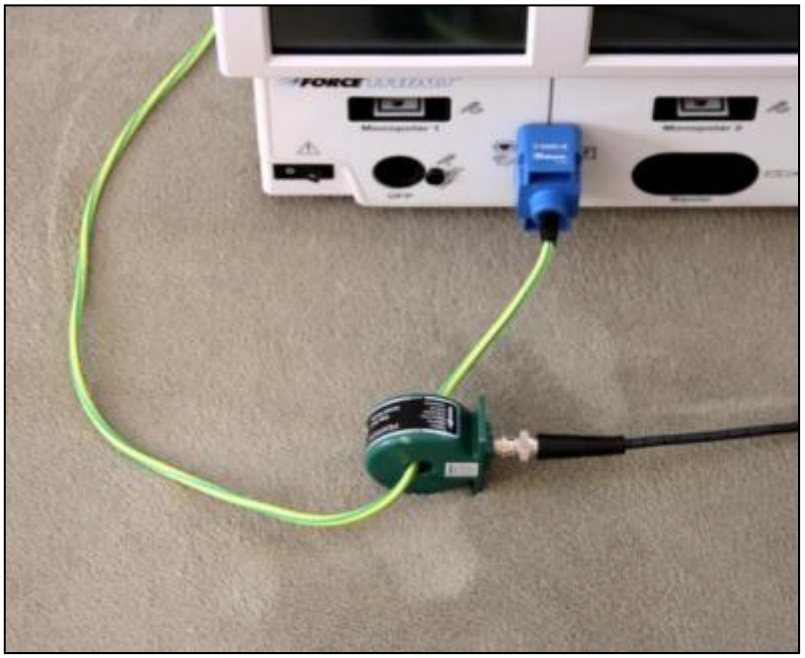
	Dsp1	Dsp2	Dsp1Avg	Dsp2Avg
PavgLd	0.000	0.000	0.000	0.000
VrmsLd	0.812	0.411	0.812	0.411
LrmsLd	0.0001	0.0000	0.0001	0.0000
Lkg	0.072	0.064	0.072	0.064
ZLoad	9736.1	9736.1	9736.1	9736.1
VIΦ	0.029	0.047	0.054	0.032
Pk I	0.001	0.000	0.001	0.000
Pk V	1.673	0.453	1.673	0.453

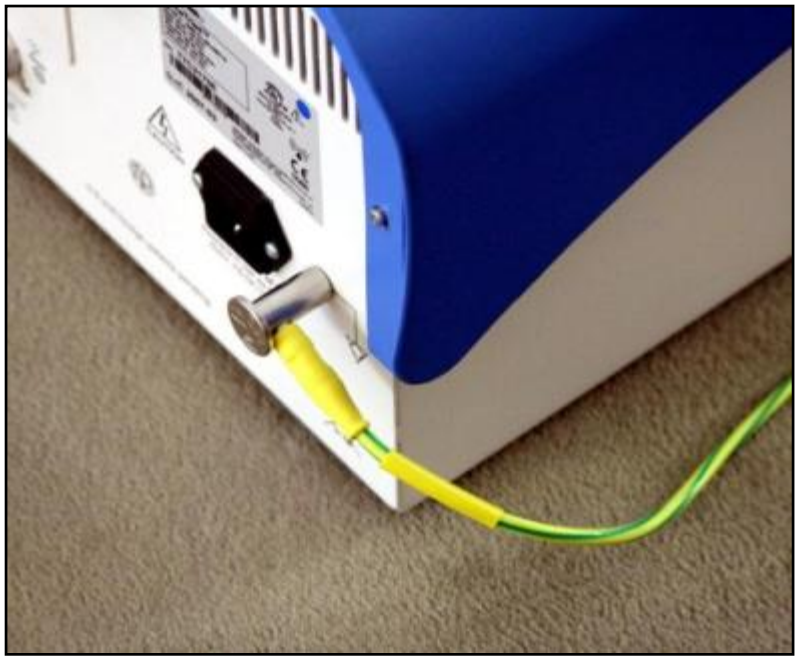
	Data	Data Avg	Data StDv
REM Voltage	4.413	4.414	0.000000
REM Ω	198.762	198.783	0.000000
HVPS Voltage	0.000	0.000	0.000000
ABP Voltage	4.819	4.819	0.000000
ABP Ω	5965.038	5964.388	0.000000
AUD Sense	384.000	383.152	0.000000
M1 Slider (hz)	381.476	381.476	0.000000
M1 Button (hz)	381.476	381.476	0.000000
M2 Slider (hz)	381.476	381.476	
M2 Button (hz)	381.476	381.476	

LC Tuning Setup Example

Item	Qty
Ground Lug Cable	1
D4 Cable with Current Probe	1
Current Monitor	1
REM Adaptor	1
#0 Flathead Screwdriver	1

LC Tuning Calibration Setup



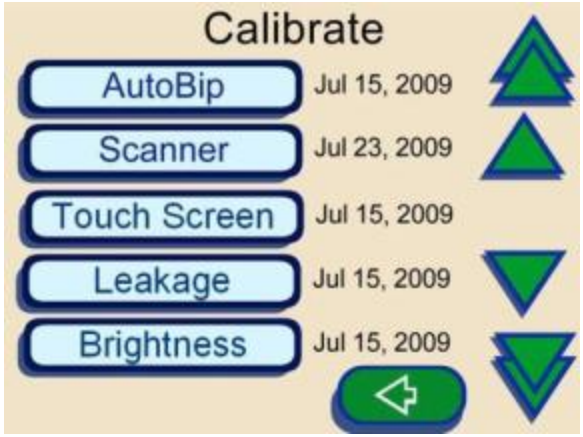


Utility Calibration

The Utility Calibration process consists of setting up the date & time, screen brightness, touch screen, and scanners on the system. This is accomplished by using the equipment outlined below and using the touch screen menu navigating to the calibration section.

TIME & DATE:
Main Menu → Setup → Time And Date

BRIGHTNESS, TOUCH SCREEN, & SCANNER:
Main Menu → Service → Maintenance → Calibrate → Brightness
Touch Screen
Scanner



Set Time & Date Example

Brightness Setup Example

Touch Screen Setup Example

Scanner Setup Example

Item	Qty
Stylus (Optional)	1
Ligasure 1 Dot Code Instrument	1

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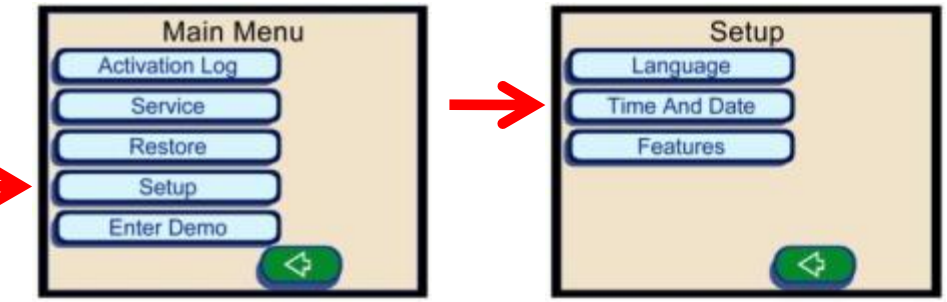
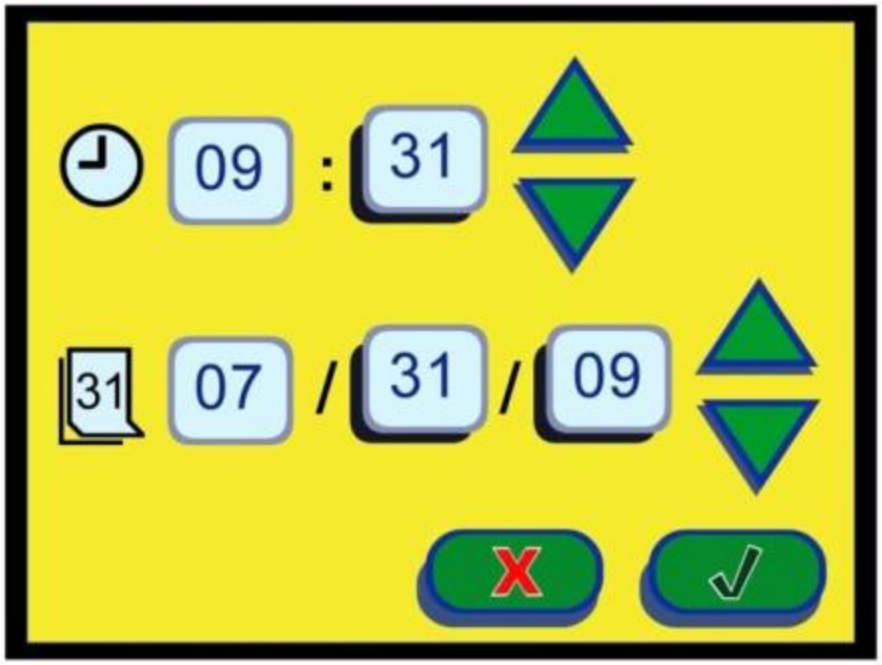
Set Time & Date Setup





DATE & TIME SETUP PROCEDURE

Navigate the ForceTriad touch screen menu to "Setup", then "Time And Date" to the screen to the left. On this screen, use the green up and down arrows to set the date and time.

After completion of setting the date and time, select the green check mark to store the date & time.

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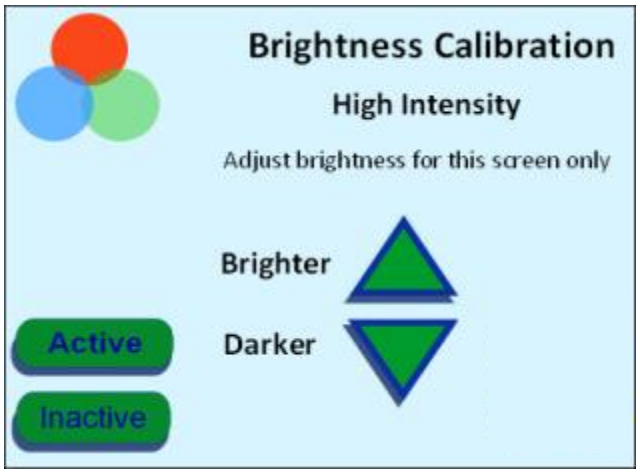
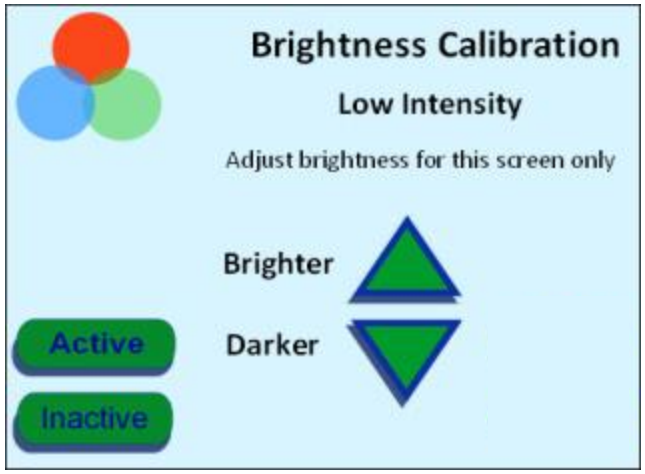
Brightness Calibration Setup

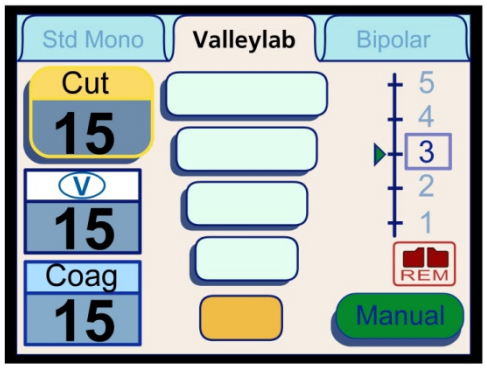
High Intensity



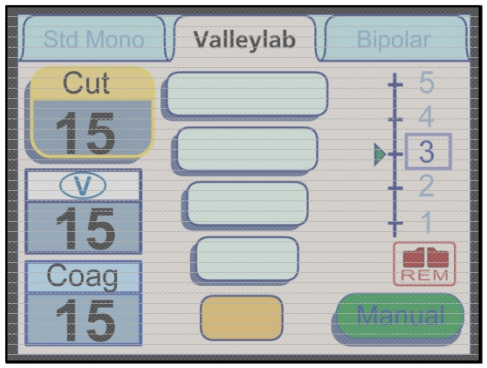
Low Intensity



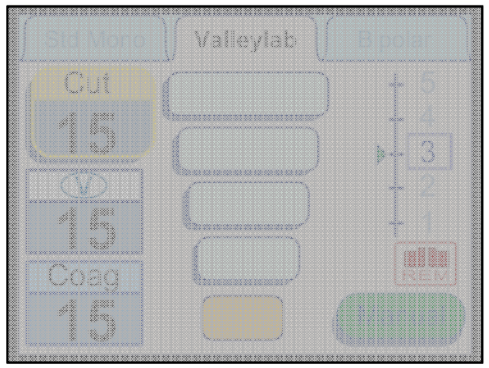
High Intensity



Low Intensity



Inactive Screen



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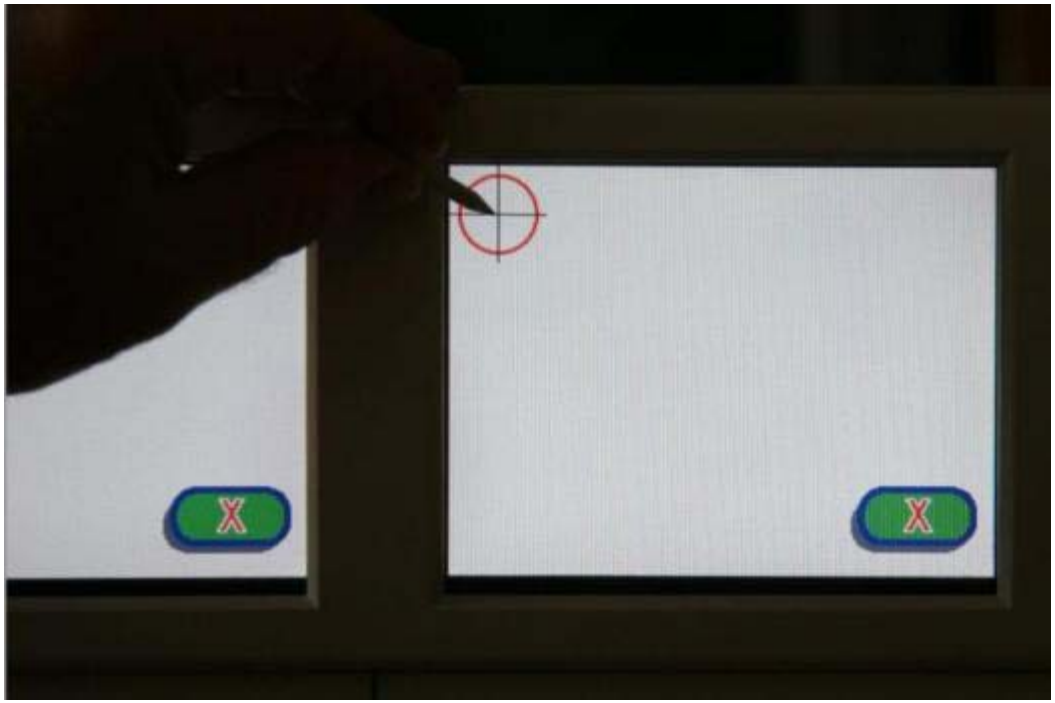
Touch Screen Calibration Setup

UCH SCREEN SETUP PROCEDURE

der the "Calibration" section of the touch een menu, select the touch screen bration. You will be prompted to touch the sshair icon on the screen.

ferably using a stylus, begin touching the nter mark of the crosshairs beginning with left screen moving right.

ur finger tip is an acceptable alternative to stylus.



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Scanner Calibration Setup

Scanner Calibration

Performing initial scanner calibration on all ports.
Please wait for calibration to complete.
Cancel may leave scanners in unusable state.

SCANNER SETUP PROCEDURE

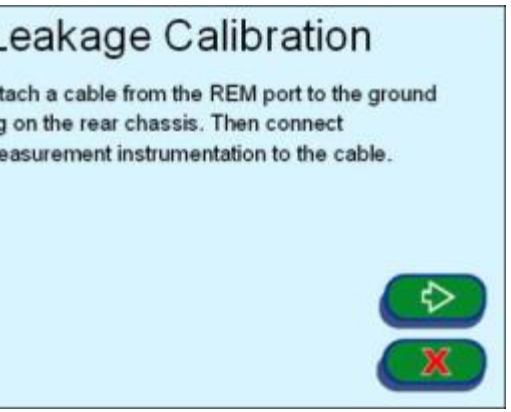
Under the “Calibration” section of the touch screen menu, select the scanner calibration. You will be prompted to insert dot code handsets.

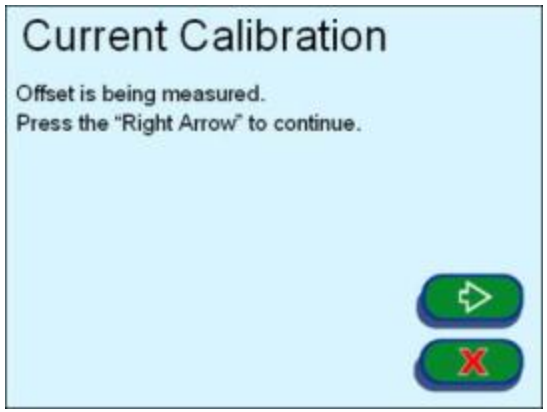
Using appropriate hand pieces, insert the hand piece into the corresponding receptacles as prompted by the on screen commands.

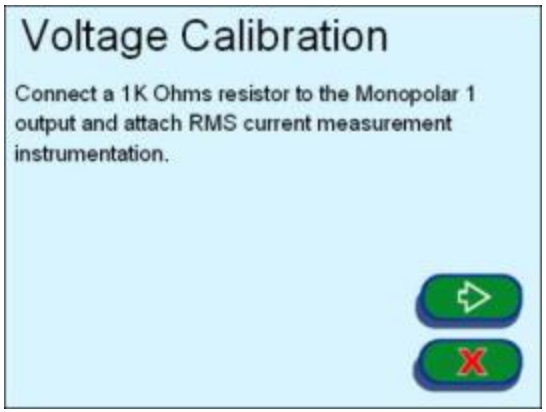
Power Calibration

The Power Calibration process consists of measuring the RF leakage, current, and voltage on the system. This is accomplished by using the equipment outlined below and using the touch screen menu navigating to the calibration section.

Main Menu → Service → Maintenance → Calibrate → Leakage
Current Cal
Voltage Cal


Leakage Calibration
tach a cable from the REM port to the ground
g on the rear chassis. Then connect
easurement instrumentation to the cable.




Voltage Calibration
Connect a 1K Ohms resistor to the Monopolar 1
output and attach RMS current measurement
instrumentation.

RF Leakage Setup Example

Current Cal Setup Example

Voltage Cal Setup Example

Item	Qty
Ground Lug Cable	1
D4 Cable with Current Probe	1
Current Monitor	1
REM Adaptor	1
Cable Lead	2
Resistors (1KΩ & 5KΩ - 250W)	1

WARNING: Do not hold down on the pushbuttons!

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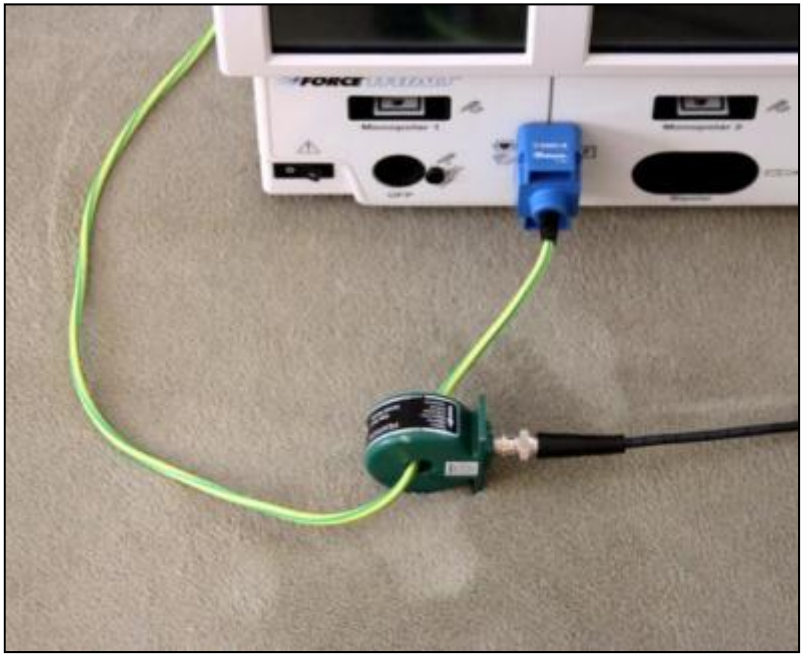
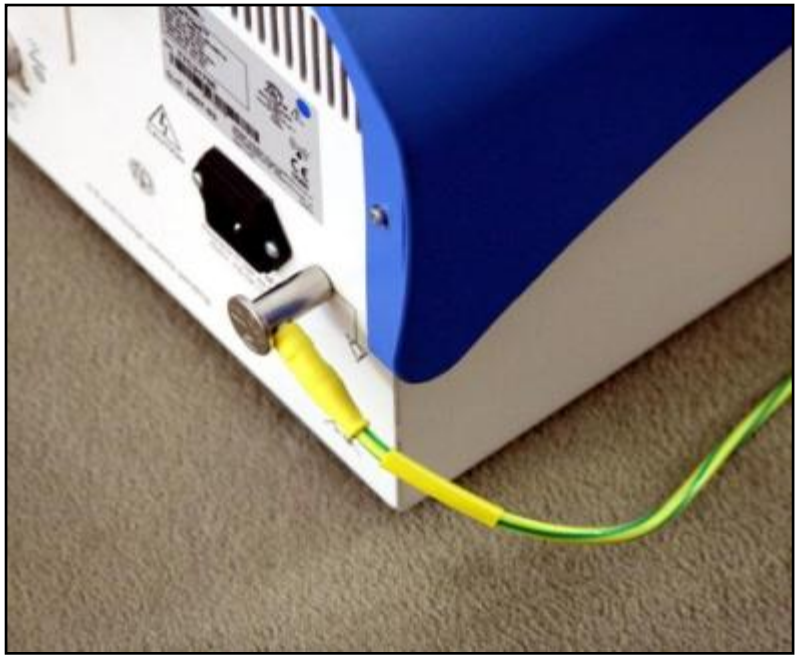
RF Leakage Calibration Setup





WARNING: Do not hold down on the pushbuttons!

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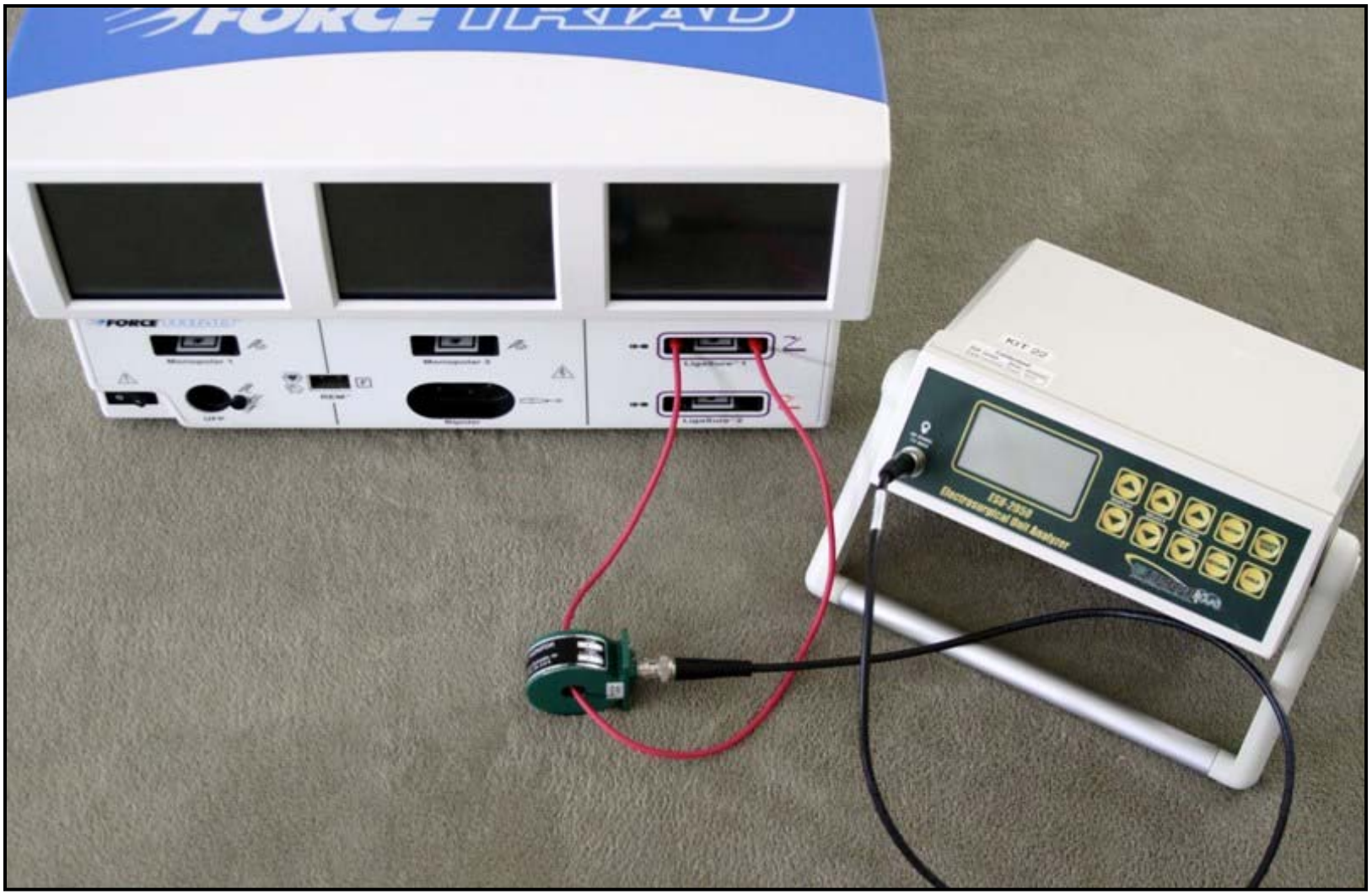
Current Calibration Setup



WARNING: Do not hold down on the pushbuttons!

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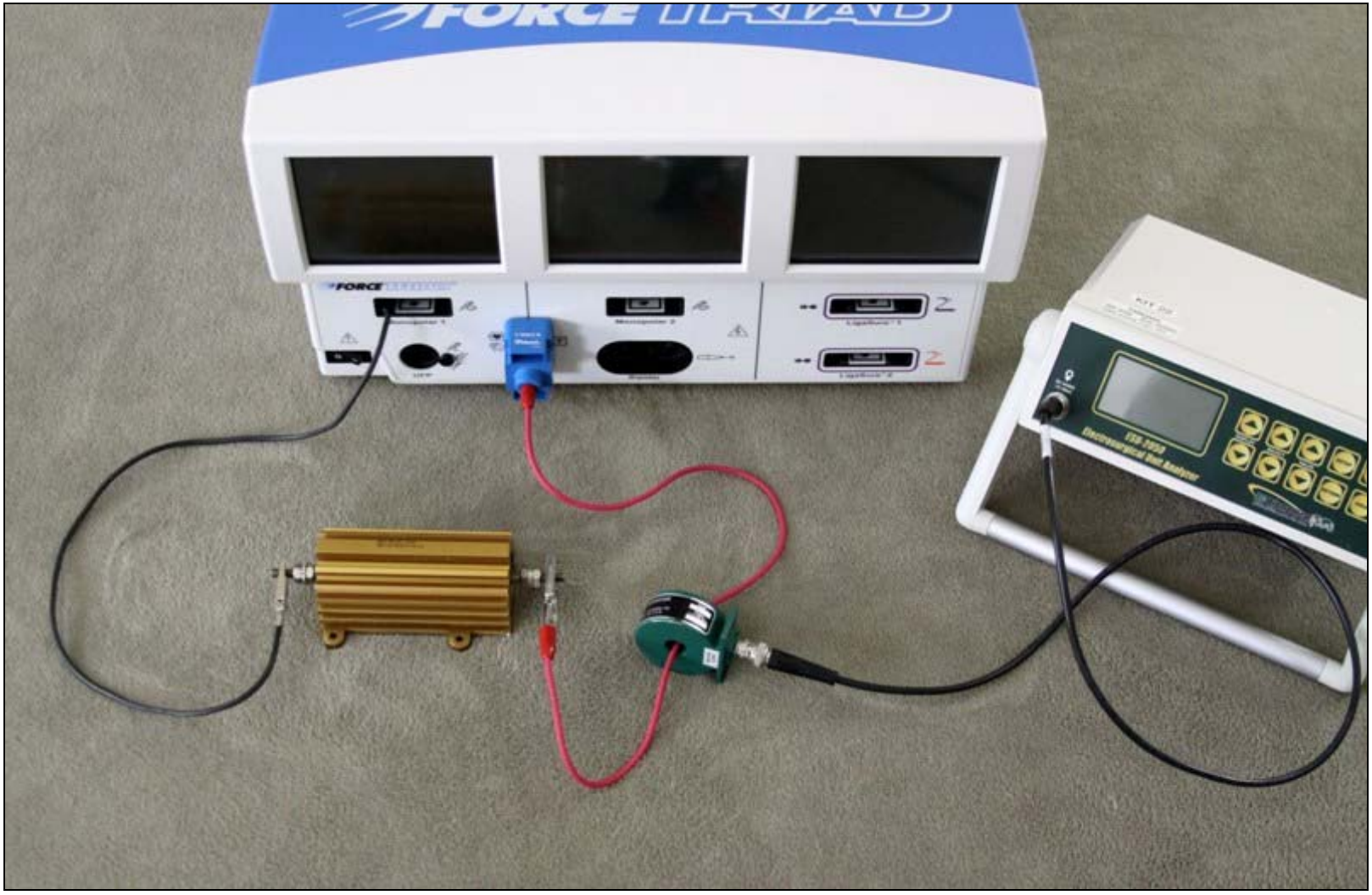
Voltage Calibration Setup



WARNING: Do not hold down on the pushbuttons!

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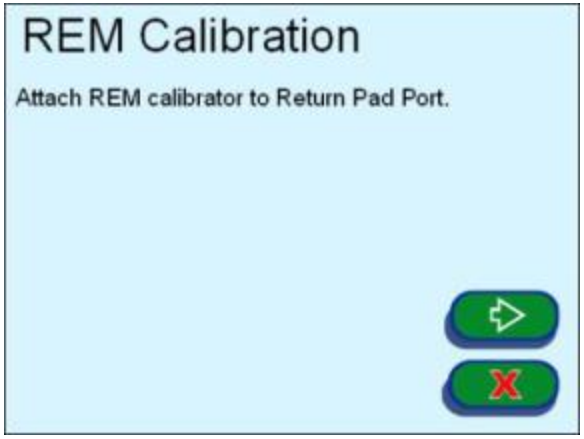
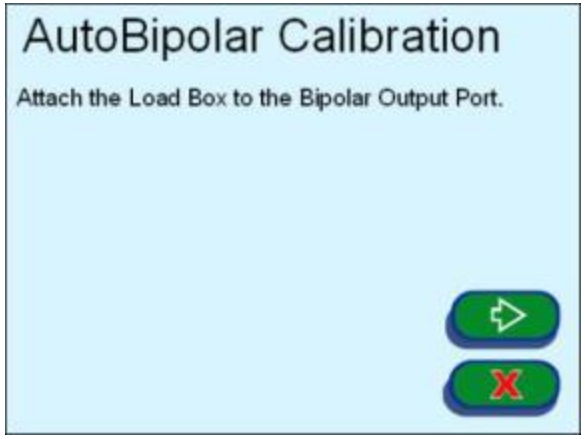
External Sensor Calibration

The External Sensor Calibration process consists of measuring the REM and AutoBipolar settings on the system. This is accomplished by using the equipment outlined below and using the touch screen menu navigating to the calibration section.

Main Menu → Service → Maintenance → Calibrate → REM
AutoBip





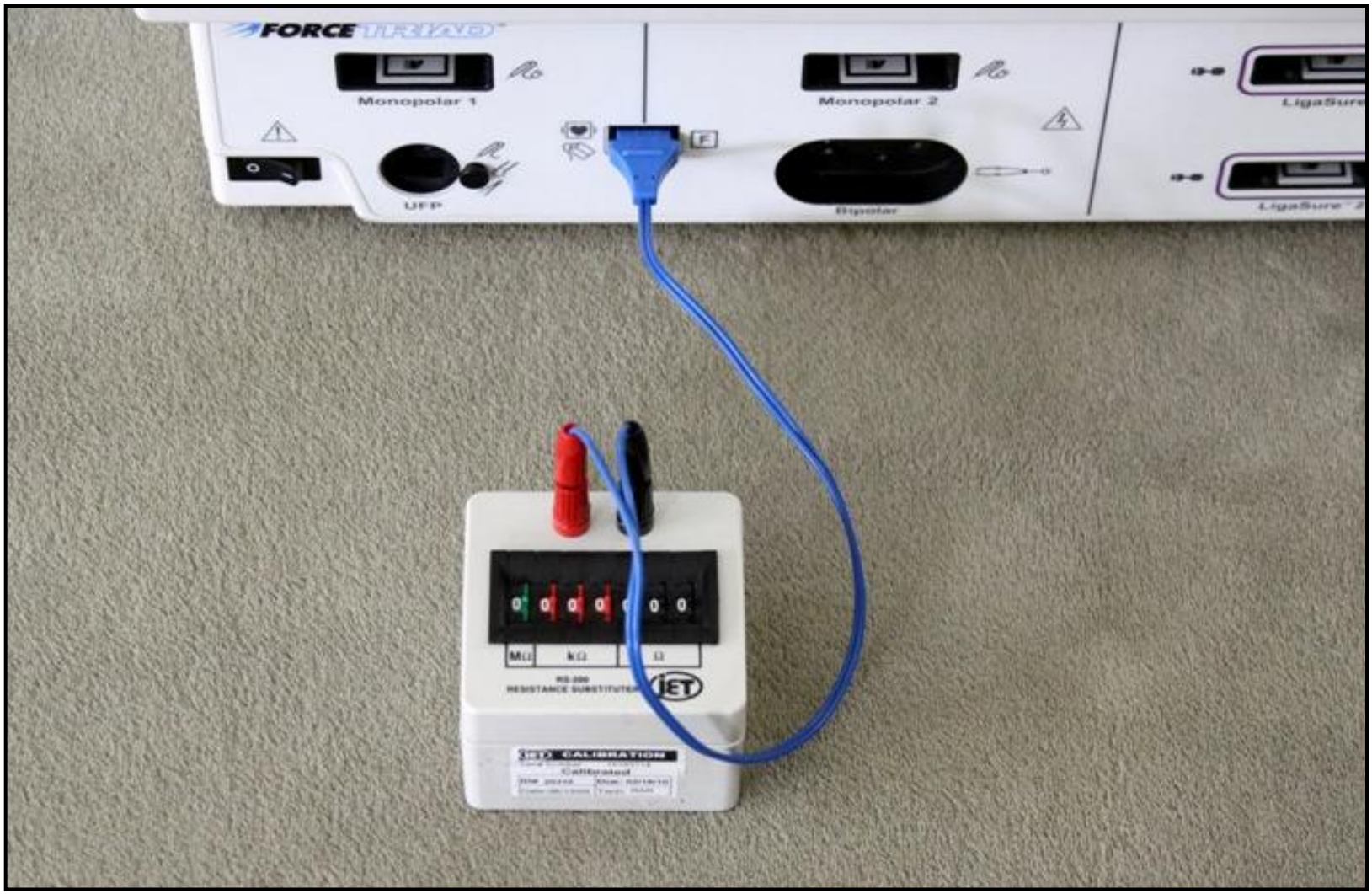
Item	Qty
REM Calibrator	1
Load Box	1
REM Calibration Cable	1
AutoBipolar Cable	1

AutoBipolar Setup Example

REM Setup Example

Autobipolar Calibration Setup

REM Calibration Setup



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Error Code Definition & Troubleshooting

Enter Error Code: Go!

1. *Enter Error Code Number (e.g. 300 not E300)*
2. *Click "Go!"*
3. *If your error does not have an associated code, select "Non-Error Code Failures".*

Non-Error Code Failures

ving trouble using the Error Code finder? Are your macros abled? Click the button on the right to learn how to enable macros.

Macros Help

COVIDIEN

Non-Error Code Troubleshooting

Gray Screens

The system responds to a power cycle and begins the system initiation. The three display screens show a blank, gray screen instead of displaying the white Covidien screen.

Black Screens

The system responds to a power cycle and begins the system initiation. The three display screens show a blank, black screen instead of displaying the white Covidien screen.

Dark Screens

The system responds to a power cycle and begins the system initiation. The three display screens show a much darker screen of the expected white Covidien screen. This can range from slightly darker to nearly unreadable.

Flickering Screens

The system responds to a power cycle and begins the system initiation. The screen and/or screens begin to flicker. The flickering can happen once or occur constantly.

No Power

The system does not respond to a power cycle. The system displays and scanners do not illuminate.

User Self-Test Error

The system initiates the self-test and may pass a portion of the testing. The unit then fails at some point during the self-test. The unit will generate an error but not an error code.

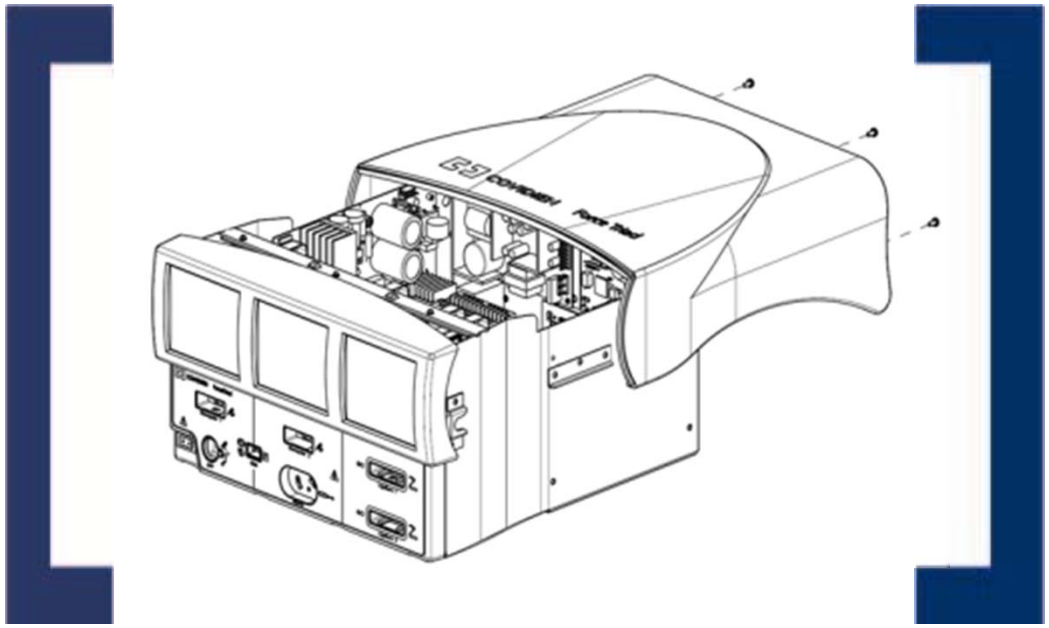
COVIDIEN

Non-Error Code Failures - Gray Screens

ne failures that are generated where the splays are blank and gray, there are a couple scenarios that could cause this. Typically, bles that are not connected or fully nnected are the cause.

ON-COMPONENT ACTIONS
- Power cycling the system
- Inspecting the component cables

EADING COMPONENT REPLACEMENTS
- Ethernet Cable
  - (Cable between Controller and Display)
- Steering Relay Cable
  - (Cable between SR and Display)



NON-COMPONENT ACTIONS INSTRUCTION

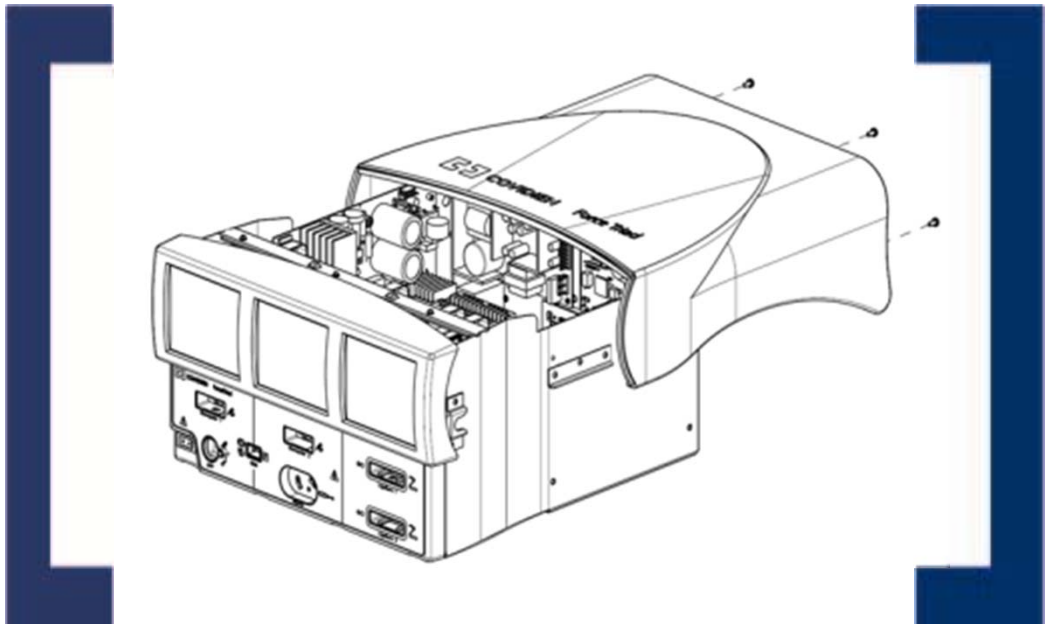
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.

Non-Error Code Failures - Black Screens

ne failures that are generated where the splays are blank and black, there is typically ne cause of this type of failure, the inverter oard.

ON-COMPONENT ACTIONS
- Power cycling the system
- Inspecting the component cables

EADING COMPONENT REPLACEMENTS
- Inverter Board



NON-COMPONENT ACTIONS INSTRUCTION

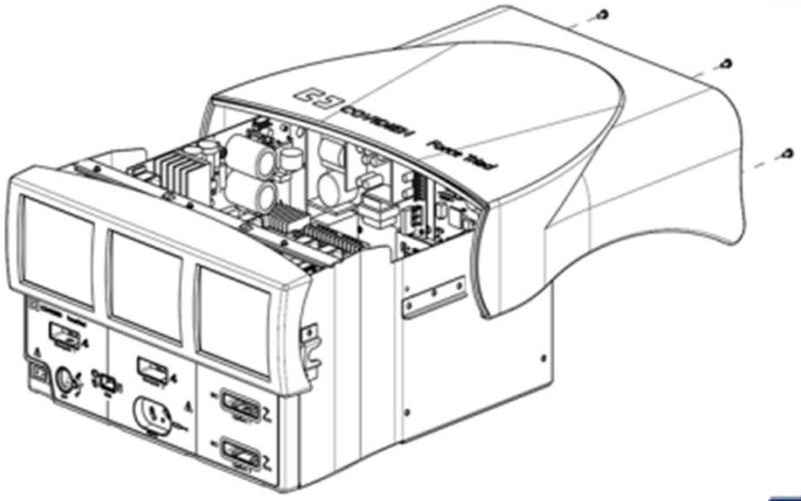
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.

Non-Error Code Failures – No Power

he failures that are generated where the stem does not power on nor is there any dication that the system received a signal to ower on. There are a couple of possibilities cause this type of failure.

ON-COMPONENT ACTIONS
- Power cycling the system
- Inspecting the component cables

EADING COMPONENT REPLACEMENTS
- System Fuse
- Power Cable
- Controller Board
- Low Voltage Power Supply



NON-COMPONENT ACTIONS INSTRUCTION

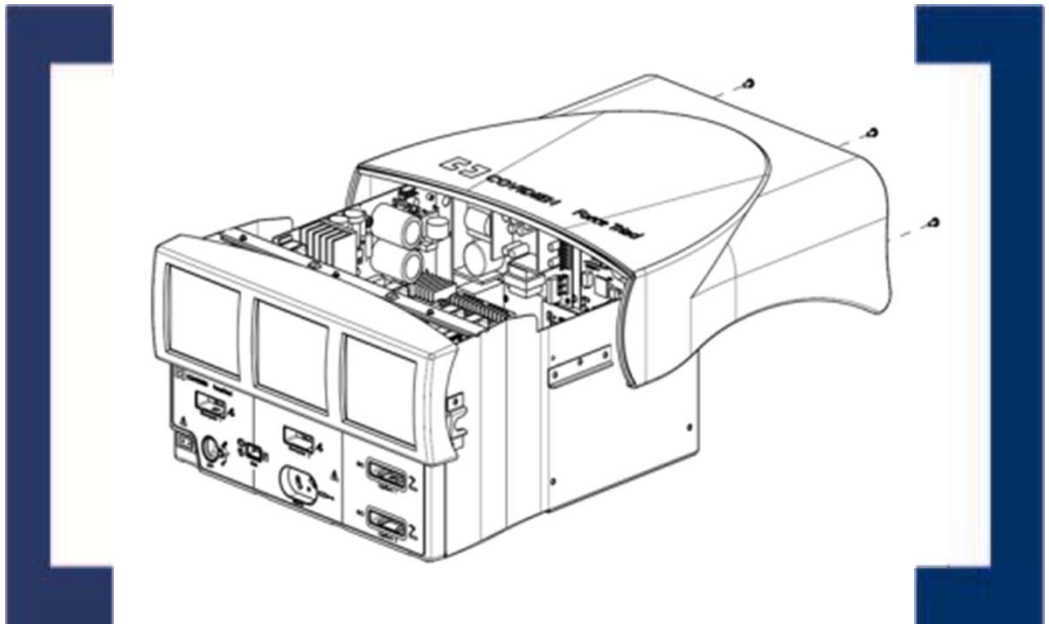
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.

Non-Error Code Failures – User Self-Test

he failure that is generated where the system ils a user generated self-test via the Diagnostics" menu the typical failure mode is e Footswitch Board.

ON-COMPONENT ACTIONS
- Power cycling the system
- Inspecting the component cables

EADING COMPONENT REPLACEMENTS
- Footswitch Board



NON-COMPONENT ACTIONS INSTRUCTION

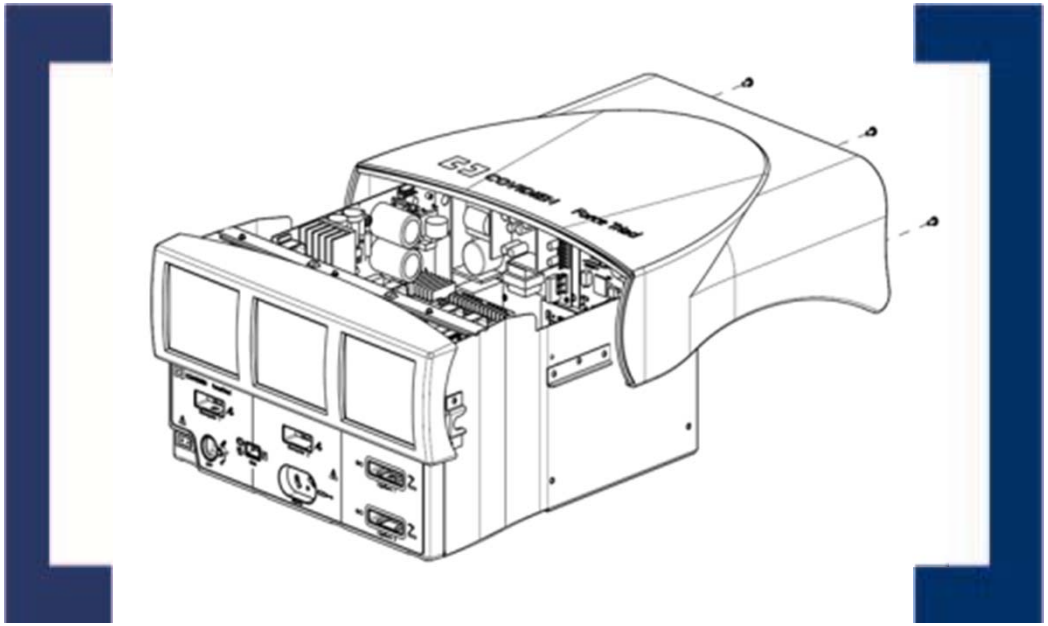
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.

Non-Error Code Failures – Flickering Screens

he failure that is generated where the system ils a user generated self-test via the Diagnostics" menu the typical failure mode is e Footswitch Board.

ON-COMPONENT ACTIONS
- Power cycling the system
- Inspecting the component cables

EADING COMPONENT REPLACEMENTS
- Power Cable
- (Cable between SR and Display)



NON-COMPONENT ACTIONS INSTRUCTION

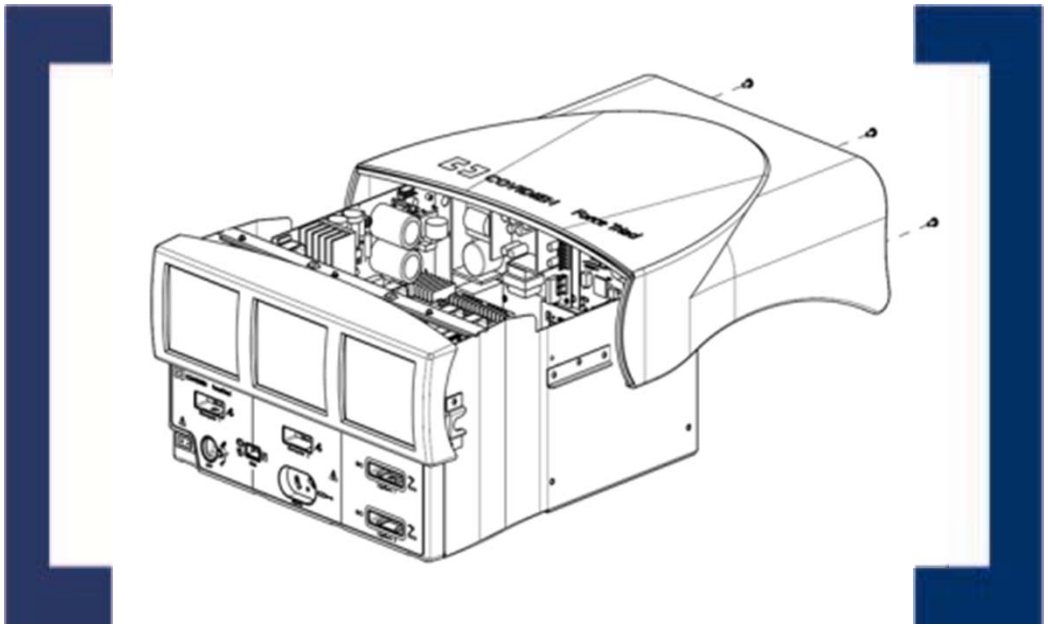
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.

Non-Error Code Failures – Dark Screens

he failure that is generated where the system ils a user generated self-test via the Diagnostics" menu the typical failure mode is e Footswitch Board.

ON-COMPONENT ACTIONS
- Power cycling the system
- Inspecting the component cables
- Brightness calibration

EADING COMPONENT REPLACEMENTS
- Display Inverter



NON-COMPONENT ACTIONS INSTRUCTION

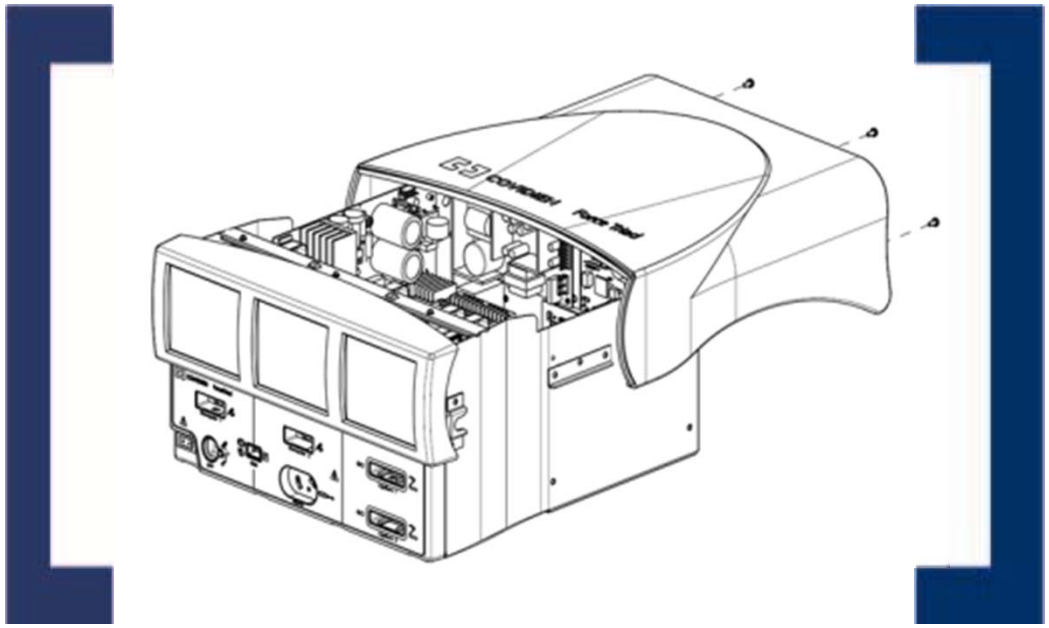
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a brightness calibration as outlined in the Service Manual.

E2 – ERR_SE_ICL_ERROR

he E2 error code is designated and issued to gnify that the unit is unable to communicate the hardware using the HOST ICL registers.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

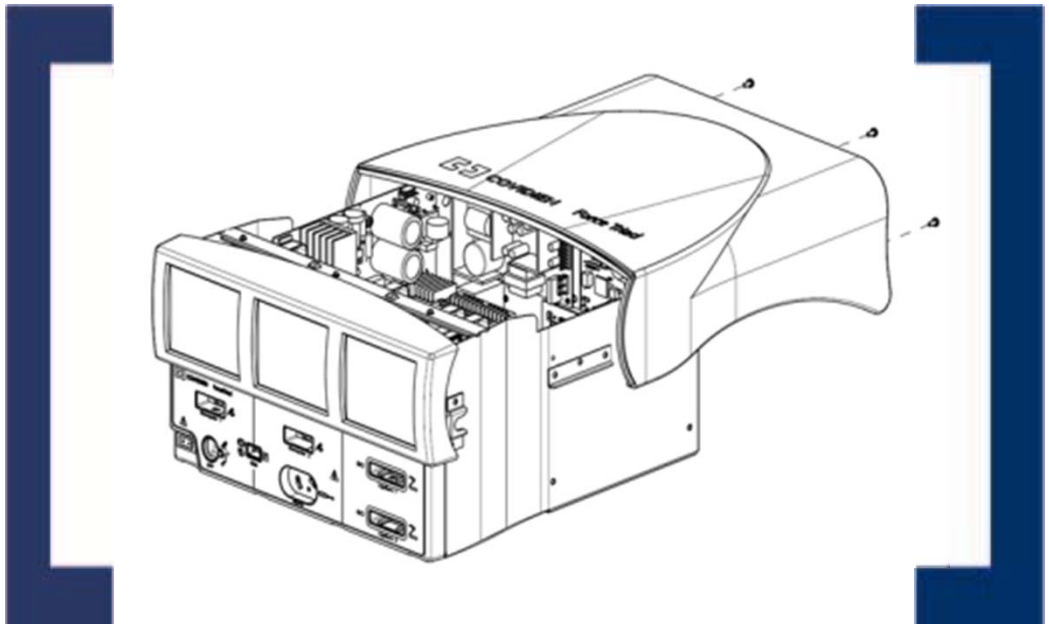
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E3 – ERR_SE_APP_ROM_FAIL

he E3 error code is designated and issued to gnify that the DSP application ROM check iled during start-up.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

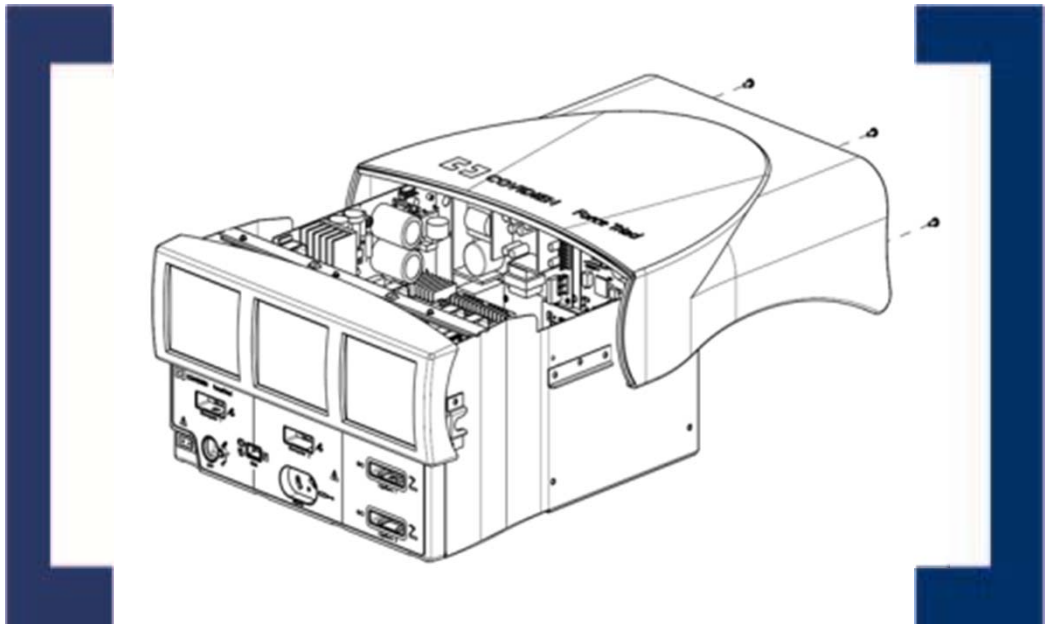
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E4 – ERR_SE_BOOT_ROM_FAIL

he E4 error code is designated and issued to gnify that the DSP boot ROM check failed uring start-up.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

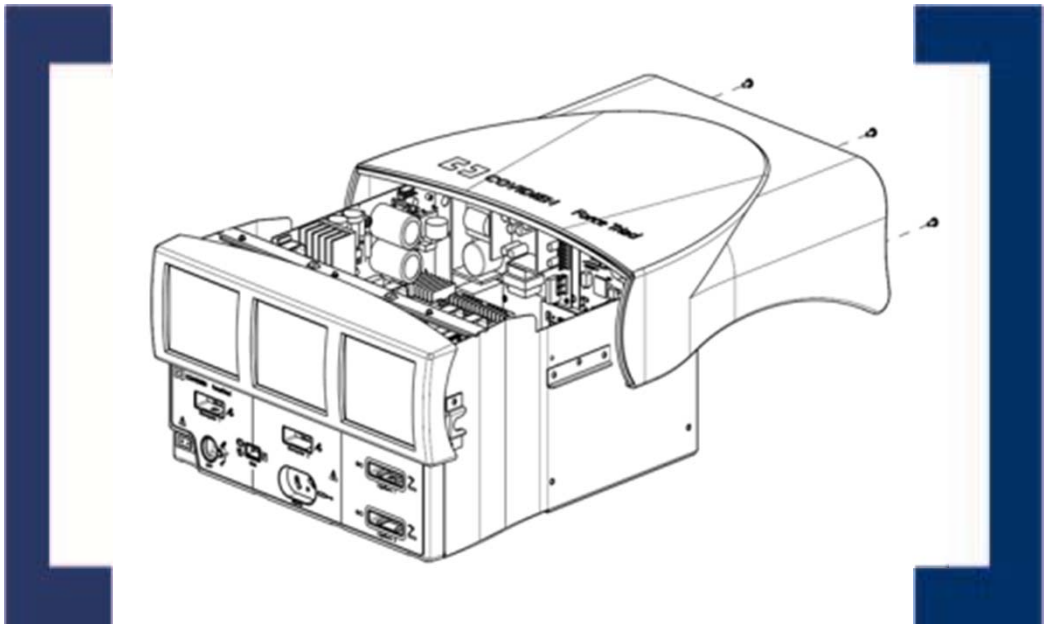
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E5 - ERR_SE_RAM_FAIL

he E5 error code is designated and issued to gnify that the DSP RAM check failed during art-up.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

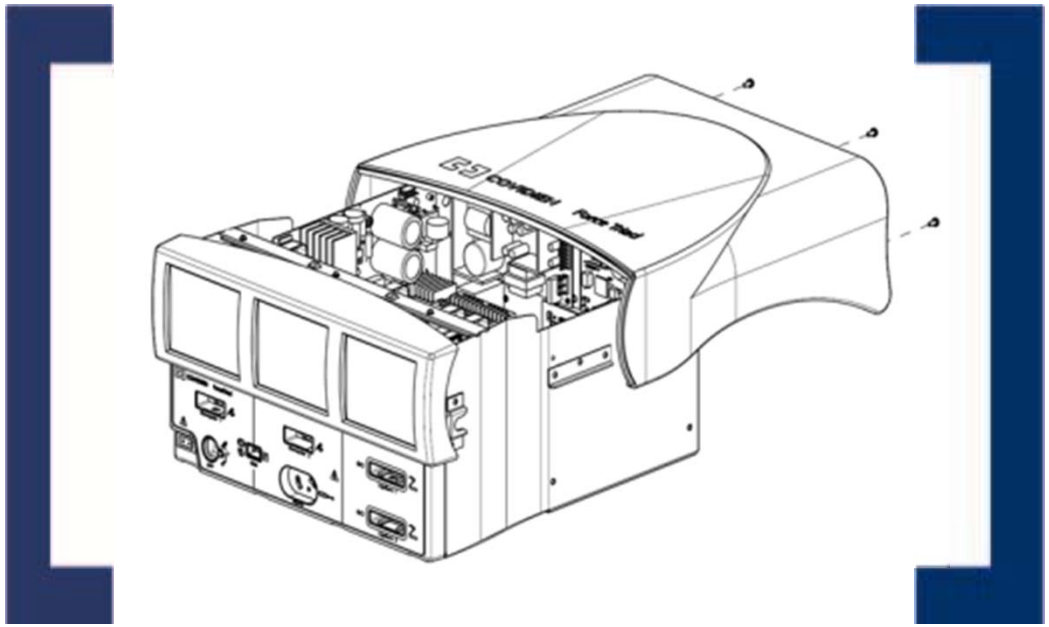
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E6 – ERR_SE_RTOS_FAIL

he E6 error code is designated and issued to gnify that a software error has occurred. he E6 error code is typically issued during al time to signify an operating system error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board
- System Display



NON-COMPONENT ACTIONS INSTRUCTION

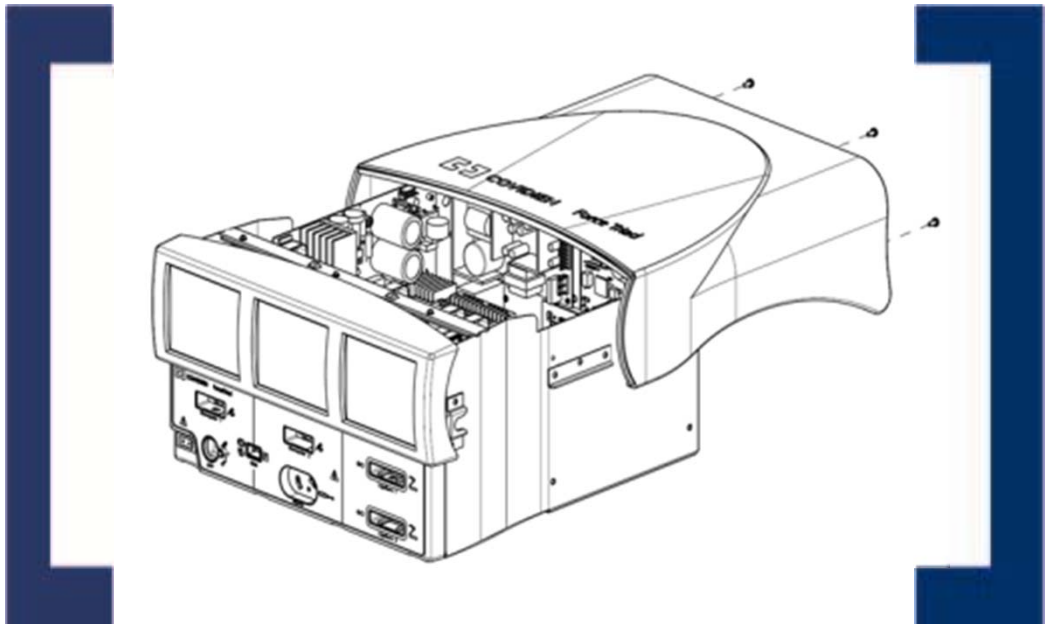
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E7 – ERR_SE_GEN_FAIL

he E7 error code is designated and issued to gnify that the generator has developed a eneral system error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

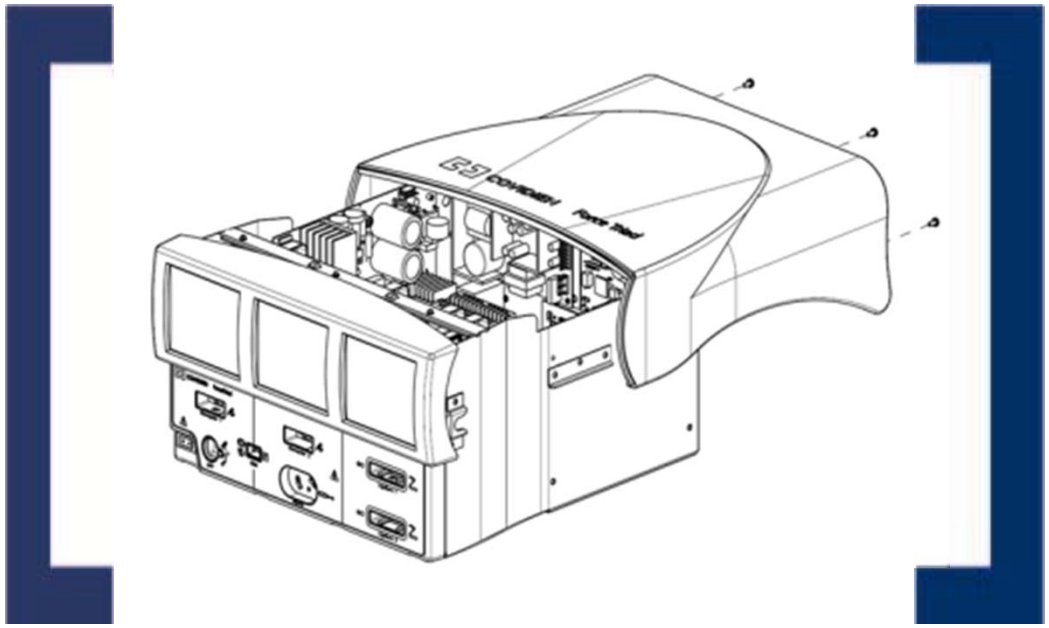
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E8 - ERR_SE_CRITICAL_DATA

he E8 error code is designated and issued to gnify that the system has a software error used by a corrupt data string.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

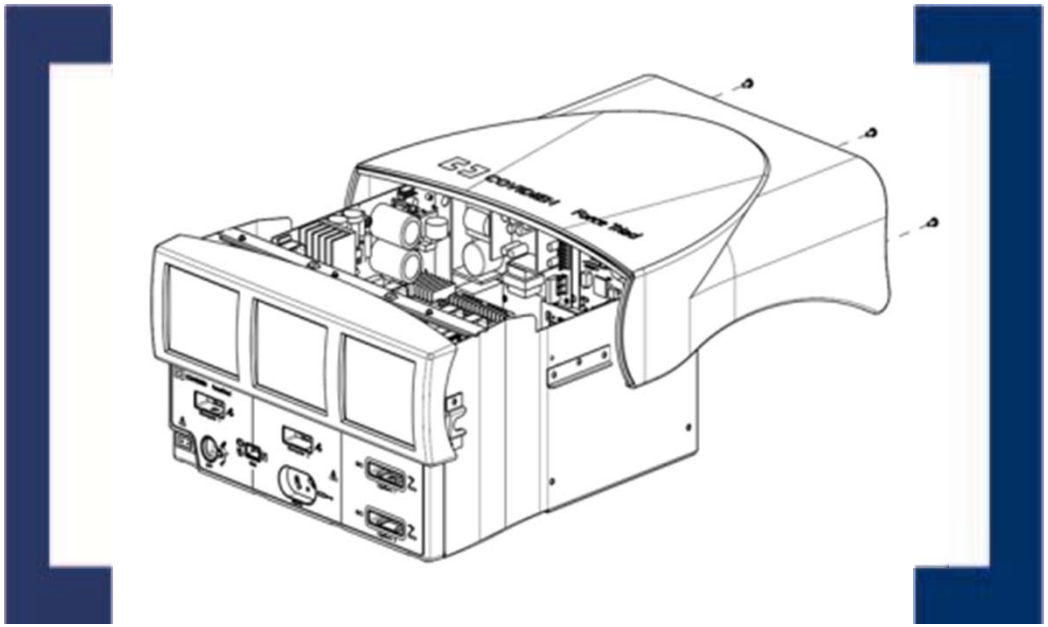
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E9 - ERR_SE_ASSERT

he E9 error code is designated and issued to gnify that the system has developed a oftware error that has generated an ssertion.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

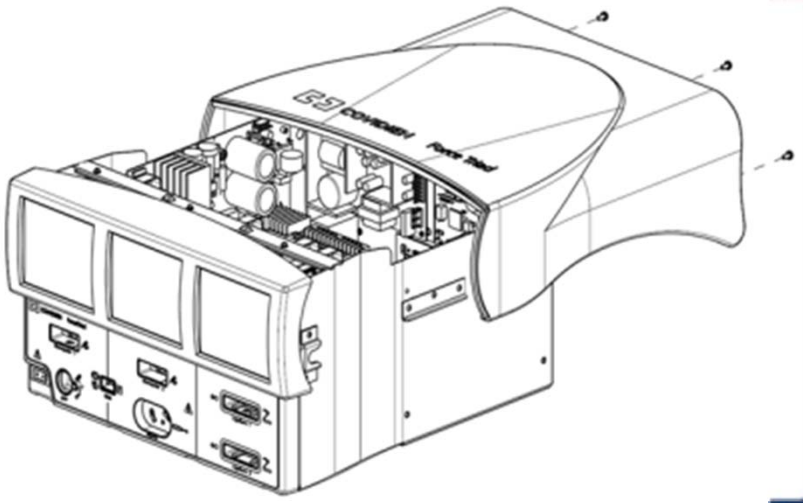
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E10 - ERR_SE_INVALID_DATA

he E10 error code is designated and issued signify that a software failure occurred ecause of an invalid data string.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

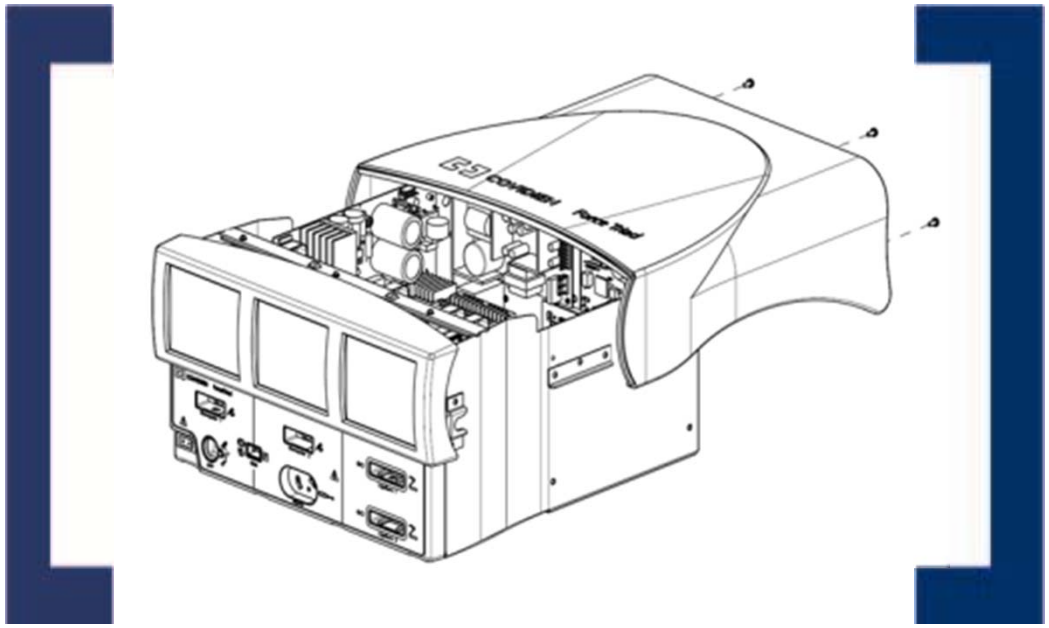
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E11 - ERR_SE_MACHINE_CHECK_EXCEPTION

he E11 error code is designated and issued signify that a HOST processor machine heck exception has occurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

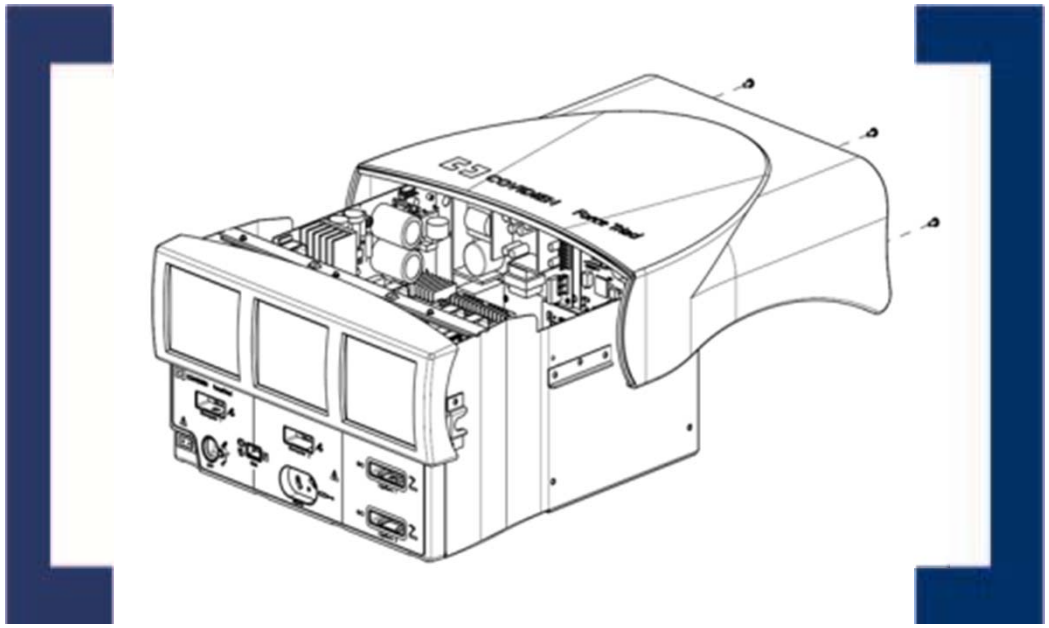
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E12 - ERR_SE_DATA_STORAGE_EXCEPTION

he E12 error code is designated and issued signify that a HOST processor data storage xception has occurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

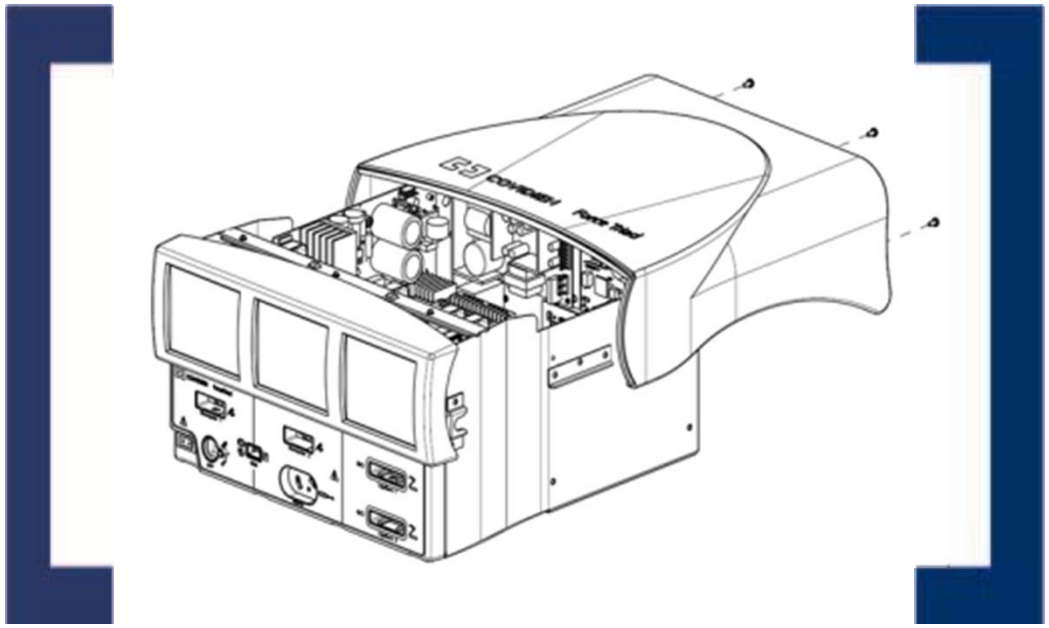
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E13 - ERR_SE_ISI_EXCEPTION

he E13 error code is designated and issued signify that a HOST processor data storage xception has occurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

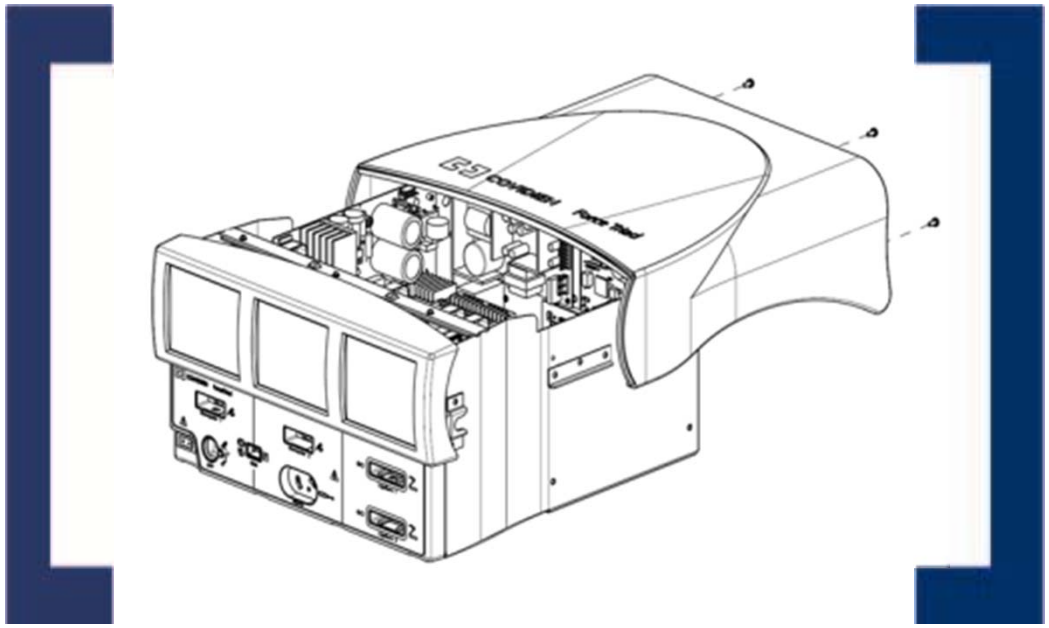
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E14 - ERR_SE_ALIGNMENT_EXCEPTION

he E14 error code is designated and issued signify that a HOST processor alignment xception has occurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

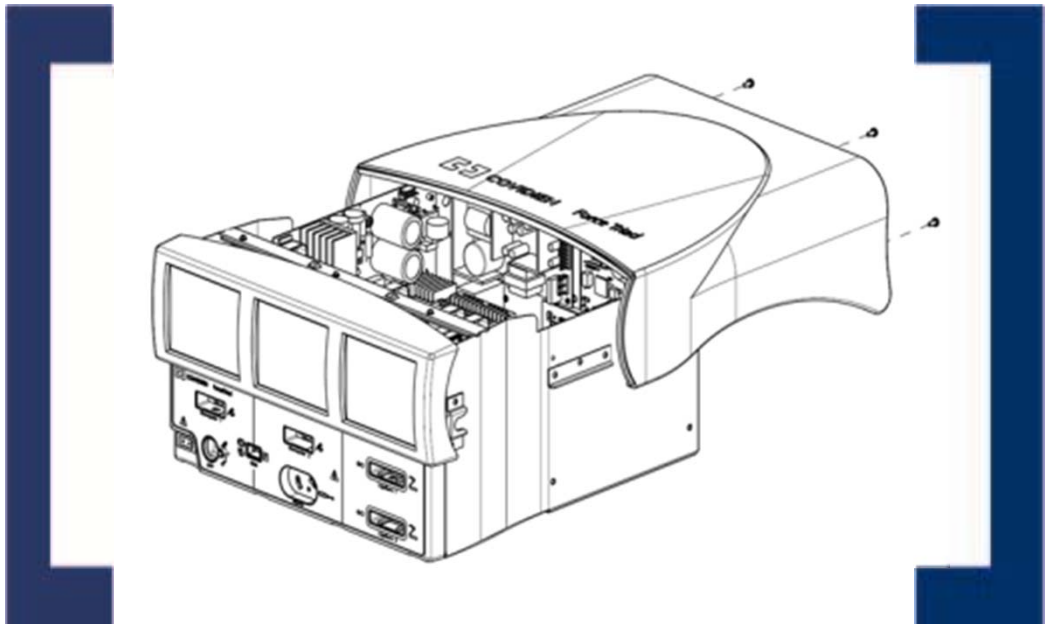
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E15 - ERR_SE_PROGRAM_EXCEPTION

he E15 error code is designated and issued signify that a HOST processor program xception has occurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

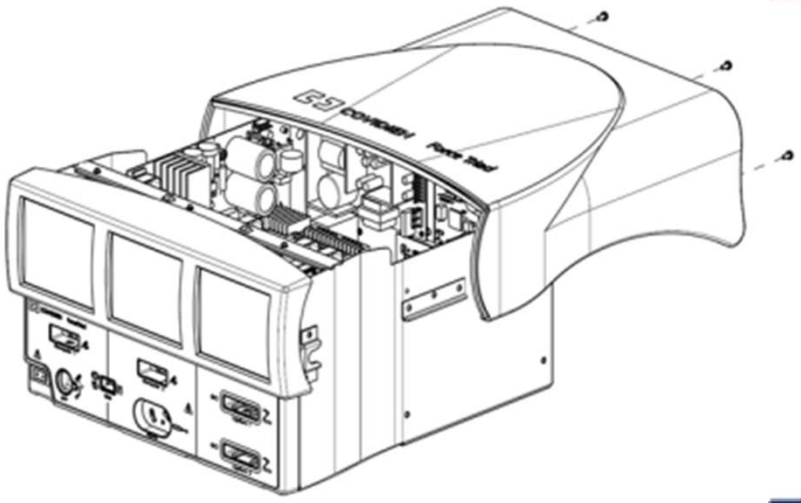
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E16 - ERR_SE_FP_UNAVAILABLE_EXCEPTION

he E16 error code is designated and issued signify that a HOST processor floating point navailable exception has occurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

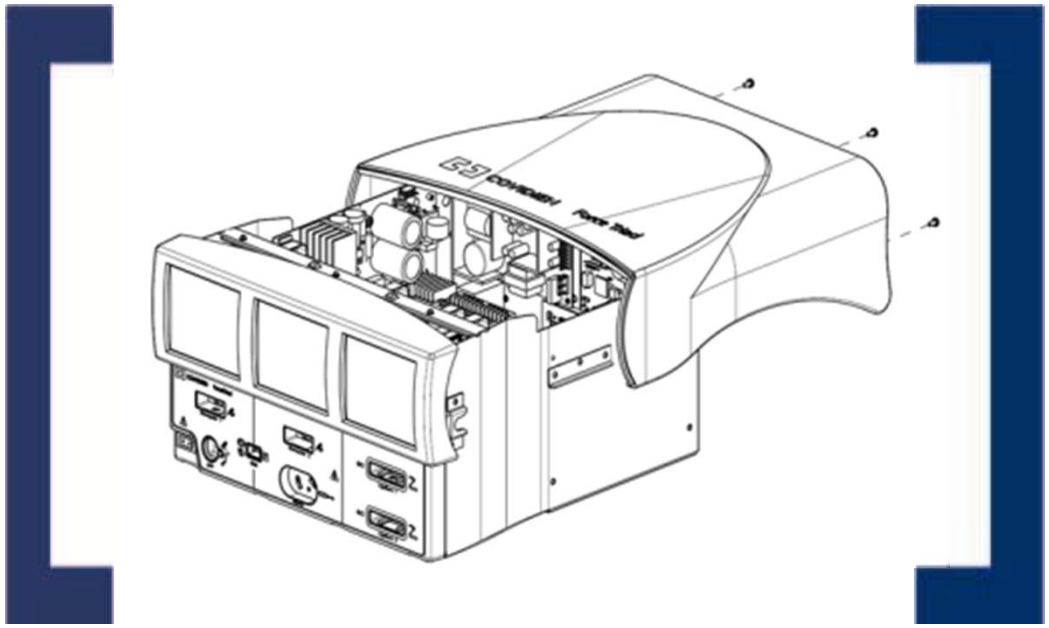
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E17 - ERR_SE_SYS_CAL_EXCEPTION

he E17 error code is designated and issued signify that a HOST processor system call xception has occurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

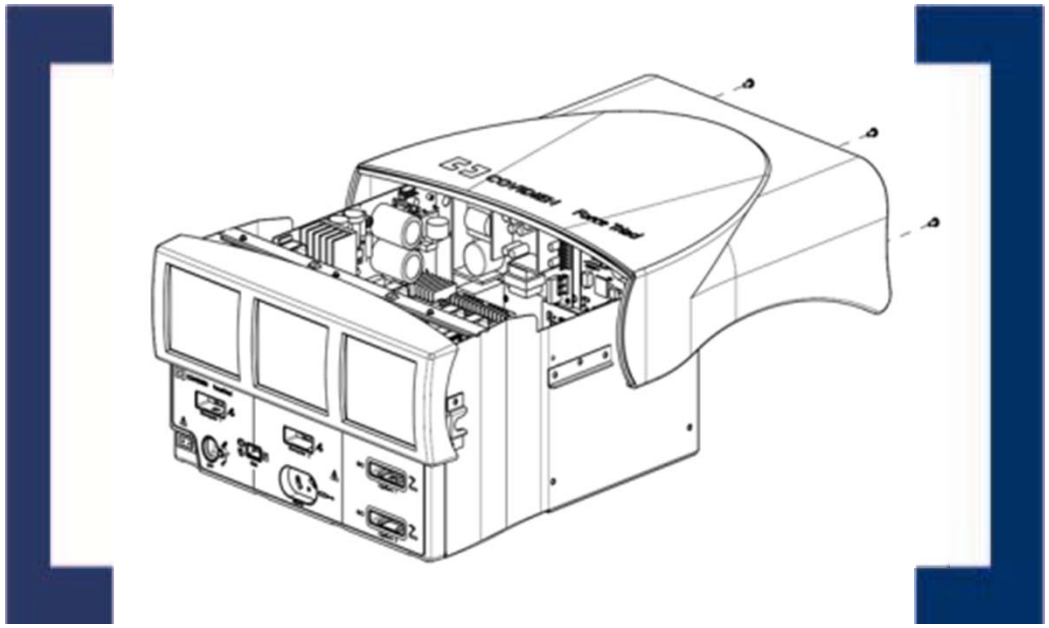
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E18 - ERR_SE_TRACE_EXCEPTION

he E18 error code is designated and issued signify that a HOST processor trace xception has occurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

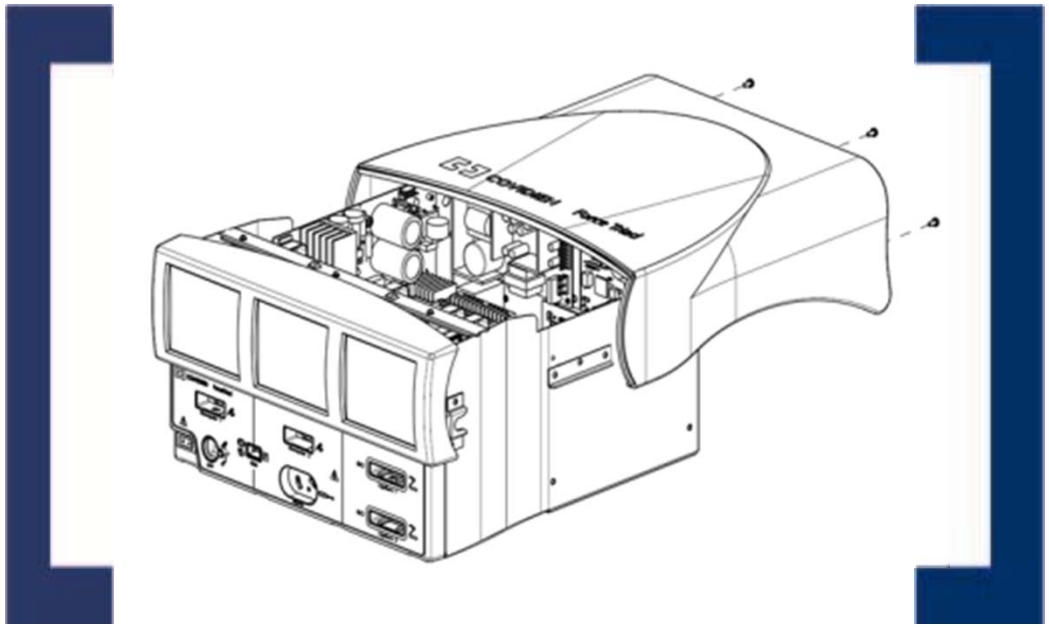
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E19 - ERR_FP_ASSIST_EXCEPTION

he E19 error code is designated and issued signify that a HOST processor floating point ssist exception has occurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

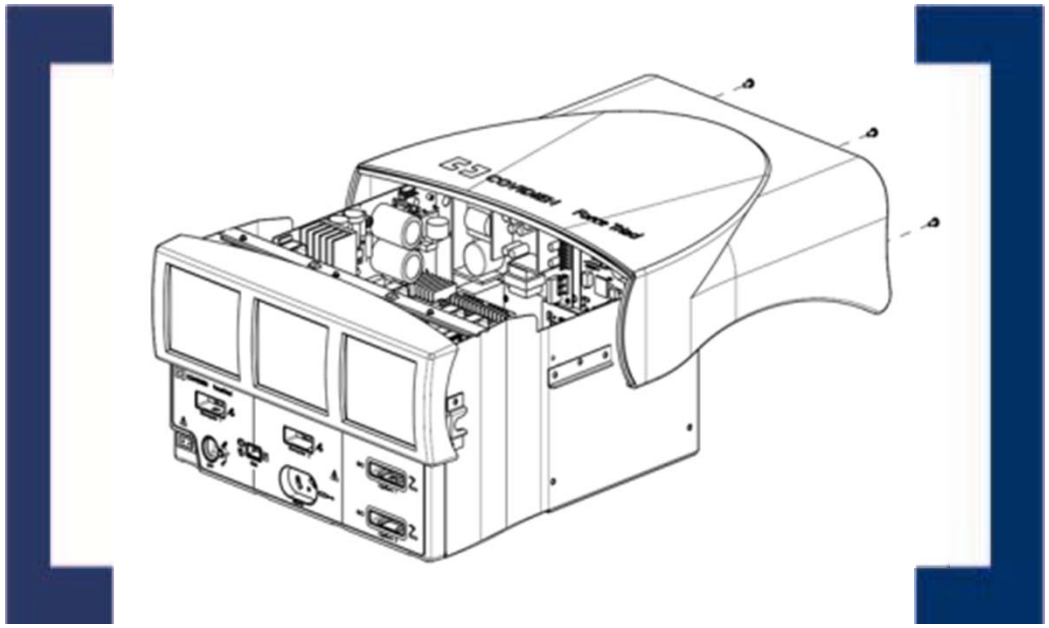
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E20 - ERR_SE_MEM_ALLOC_FAIL

he E20 error code is designated and issued signify that a memory allocation failure thin the unit has occurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

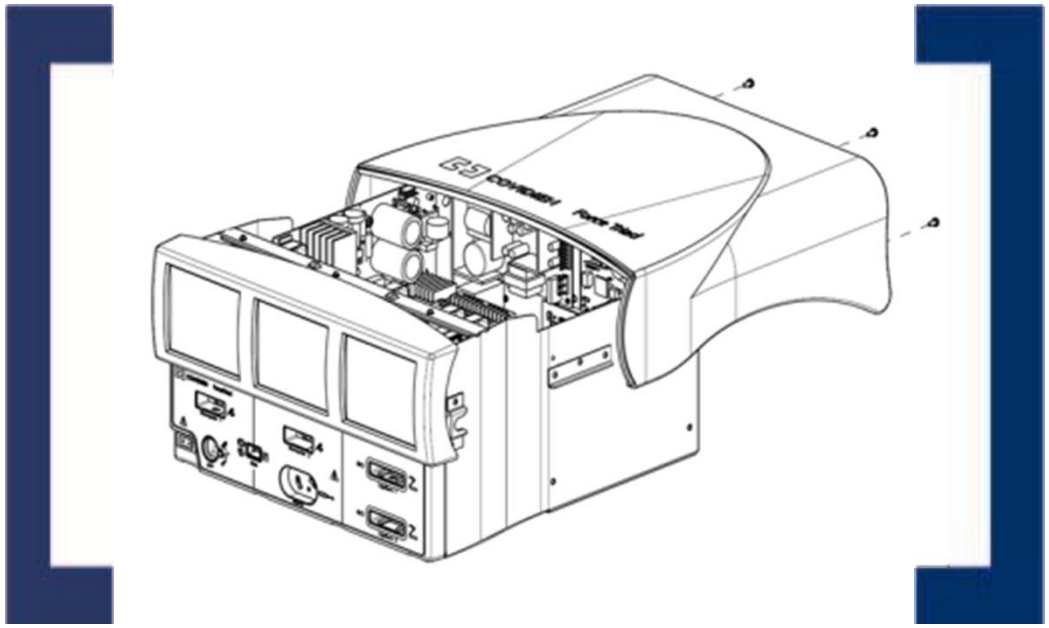
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E21 - ERR_SE_UNKNOWN_EXCEPTION

he E21 error code is designated and issued signify that a HOST processor has enerated an unknown exception and that the xception vector is not a valid vector.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

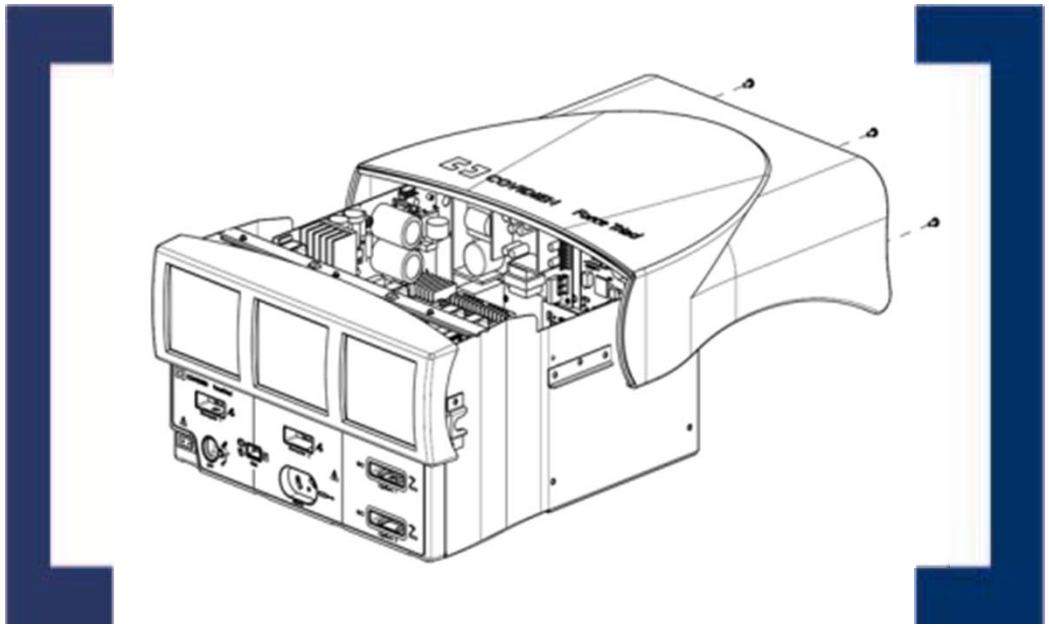
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E22 - ERR_SE_UNKNOWN_INTERRUPT

he E22 error code is designated and issued signify that a HOST processor has received n interrupt that is not initialized.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

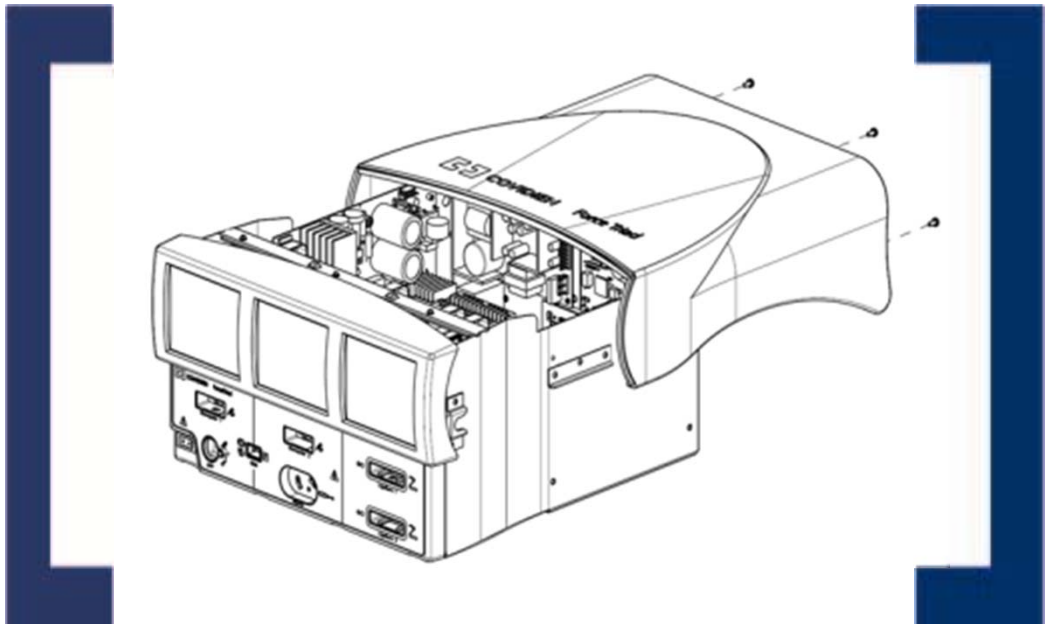
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E23 - ERR_SE_STACK_OVERFLOW

he E23 error code is designated and issued signify that a thread on the HOST has verflowed its stack.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

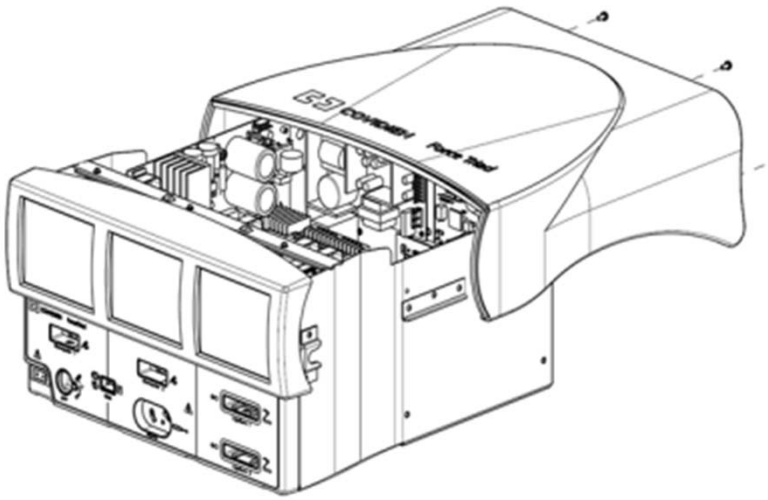
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E24 - ERR_SE_DMA_FAILURE

he E24 error code is designated and issued signify that the iDMA is stuck.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

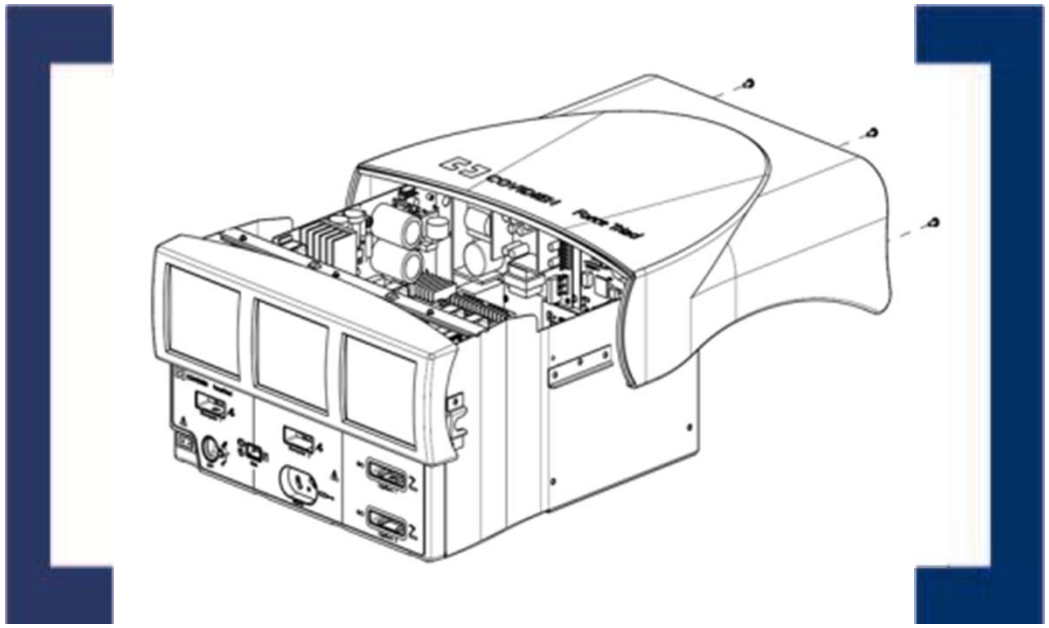
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E25 - ERR_SE_UNHANDLED_INTERRUPT

he E25 error code is designated and issued signify that a HOST processor has received n interrupt that it does not how to handle..

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

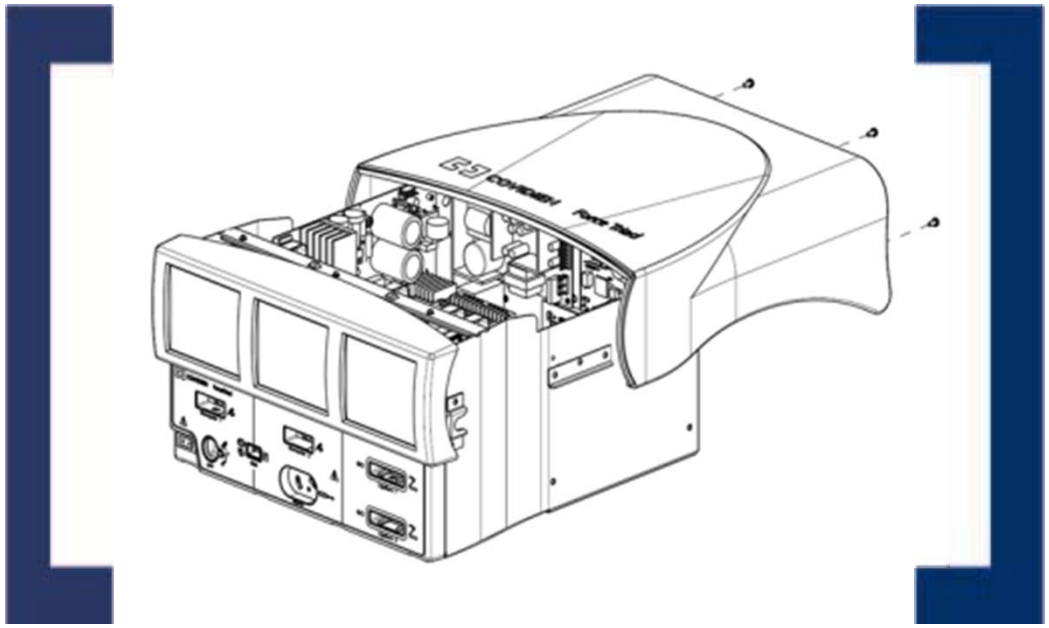
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E26 - ERR_SE_MAX_NUM_THREADS_REG

he E289 error code is designated and issued signify that a HOST code has attempted to gister more threads than what is allowed.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

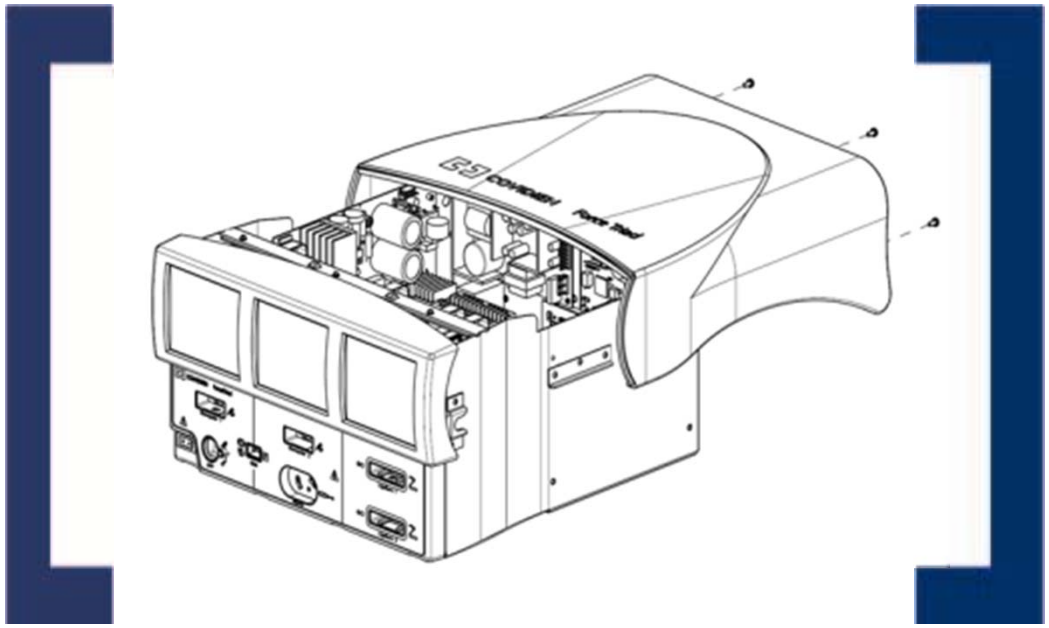
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E27 - ERR_SE_NULL_POINTER

he E27 error code is designated and issued signify that a HOST code has detected a ointer that has a NULL value.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

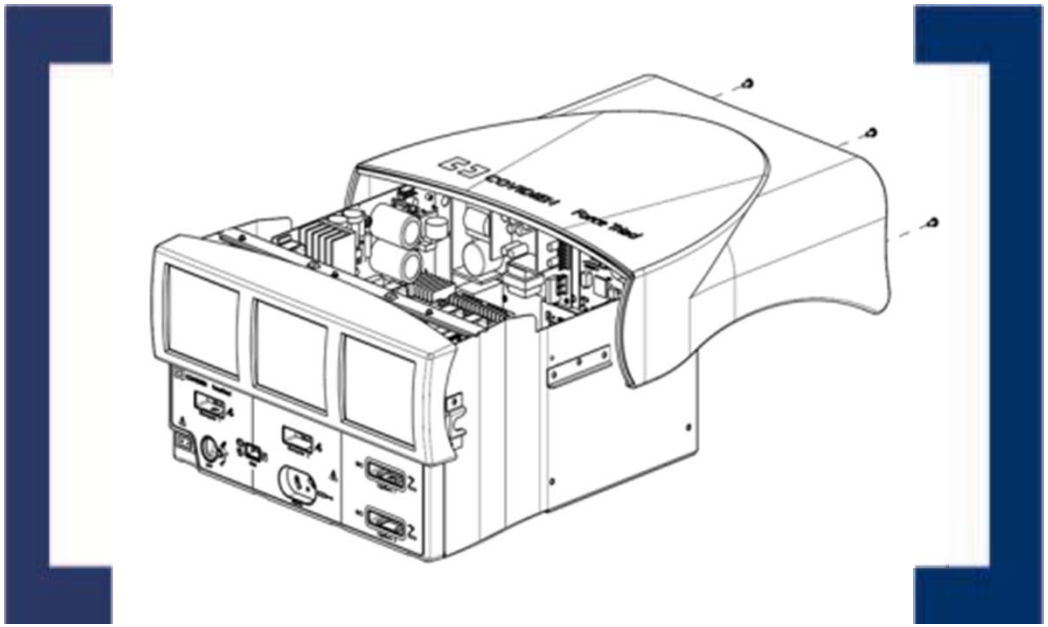
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E257 - ERR_NR_DOSAGE

he E257 error code is designated and issued signify that the system has a general RF osage error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board
- RF Board



NON-COMPONENT ACTIONS INSTRUCTION

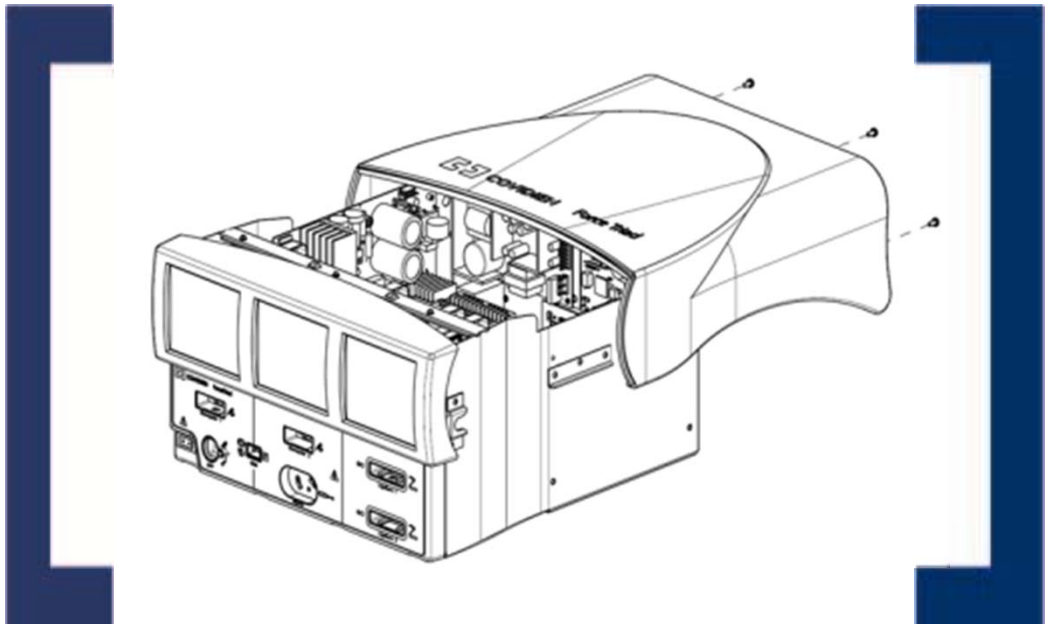
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E258 - ERR_NR_MEM_ALLOC_FAIL

he E258 error code is designated and issued signify that the system has generated a emory allocation software error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

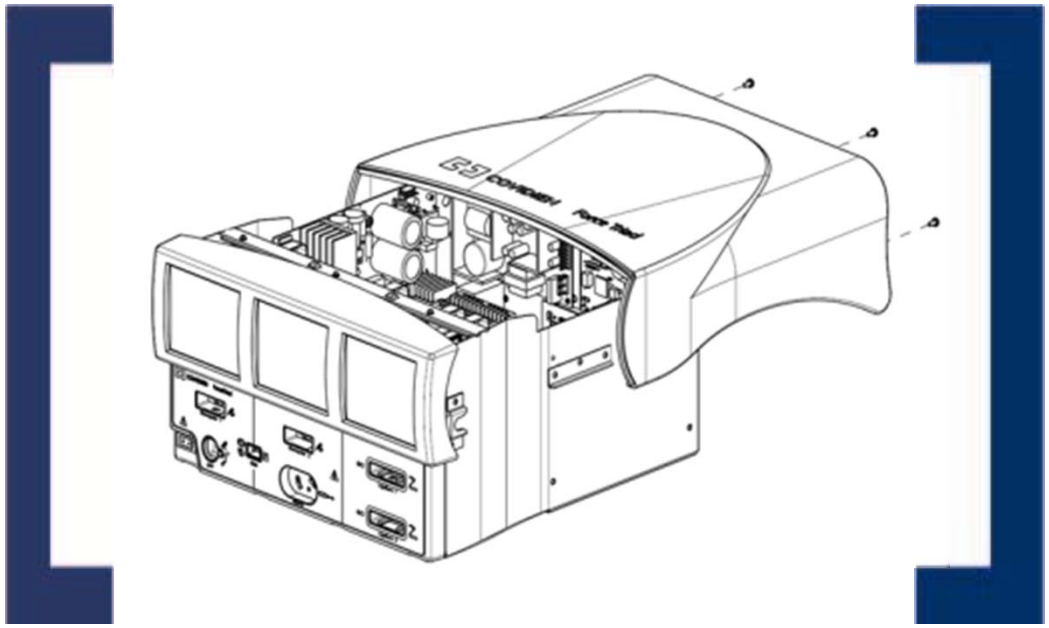
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E259 - ERR_NR_INVALID_DATA

he E259 error code is designated and issued signify that the system has generated valid data causing a software error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

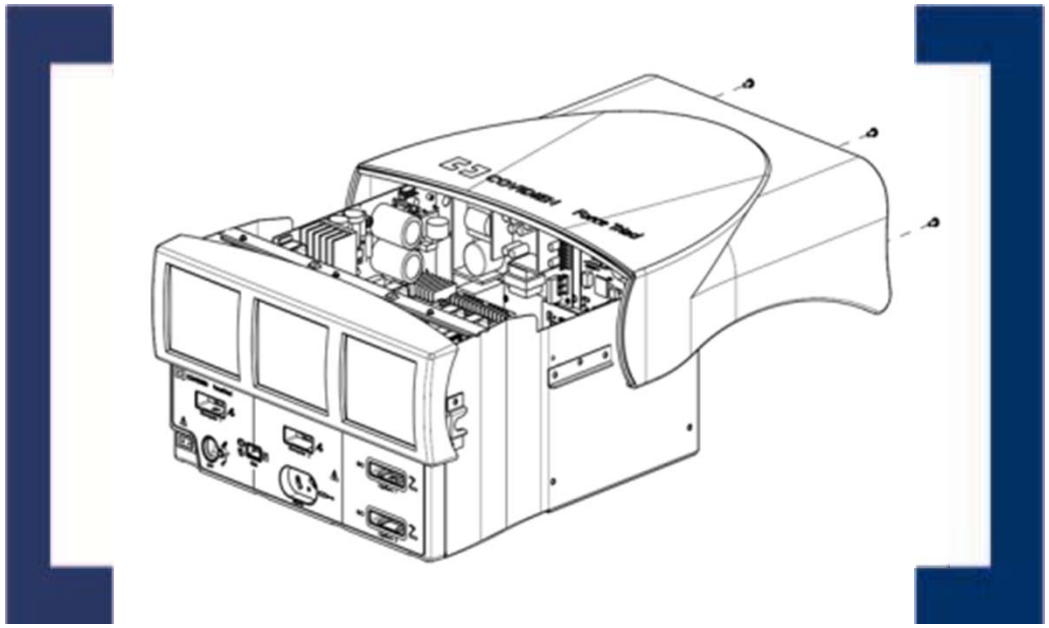
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E260 - ERR_NR_COM_ERROR

he E260 error code is designated and issued signify that the system has generated a eneric communication error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

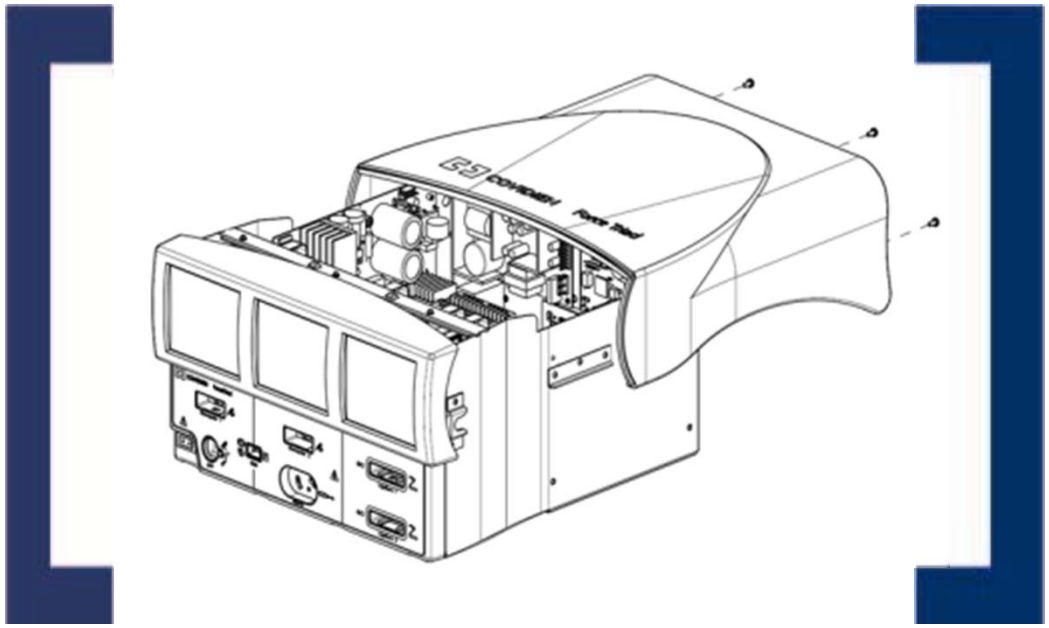
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Verify the ribbon cables and FTSW cable connections are securely seated.
4. Perform a level 6 calibration as outlined in the Calibration Section.

E261 - ERR_NR_HW_ERROR

he E289 error code is designated and issued signify that the system has generated a ardware or controller error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- HVDC Board
- Low Voltage Power Supply



NON-COMPONENT ACTIONS INSTRUCTION

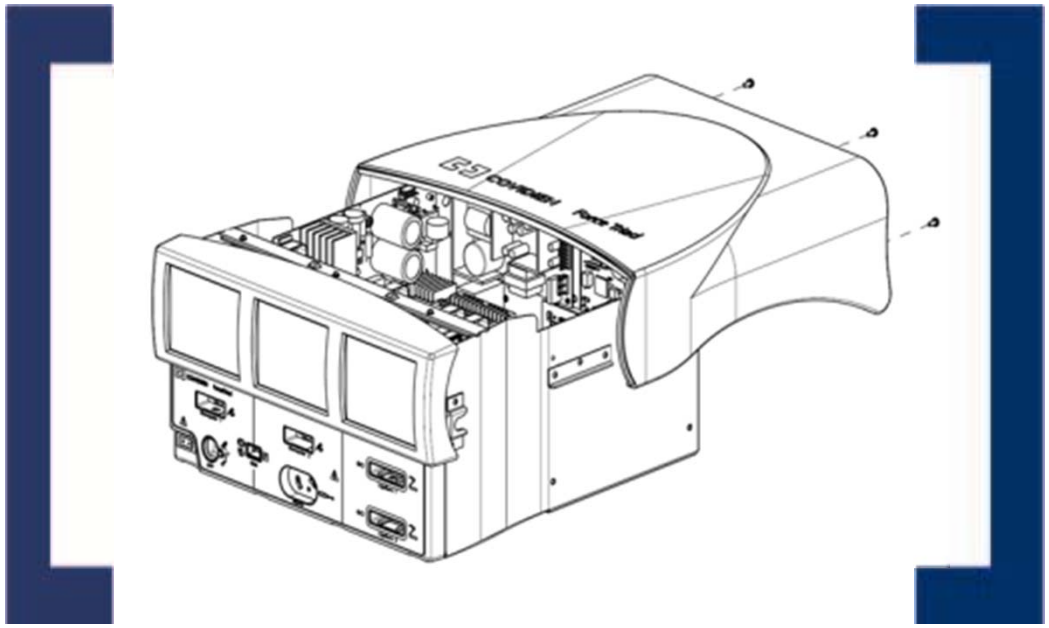
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E262 - ERR_NR_ACT_DENIED

he E262 error code is designated and issued
signify that the system has denied activation
nd generated an error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board
- FTSW Board



NON-COMPONENT ACTIONS INSTRUCTION

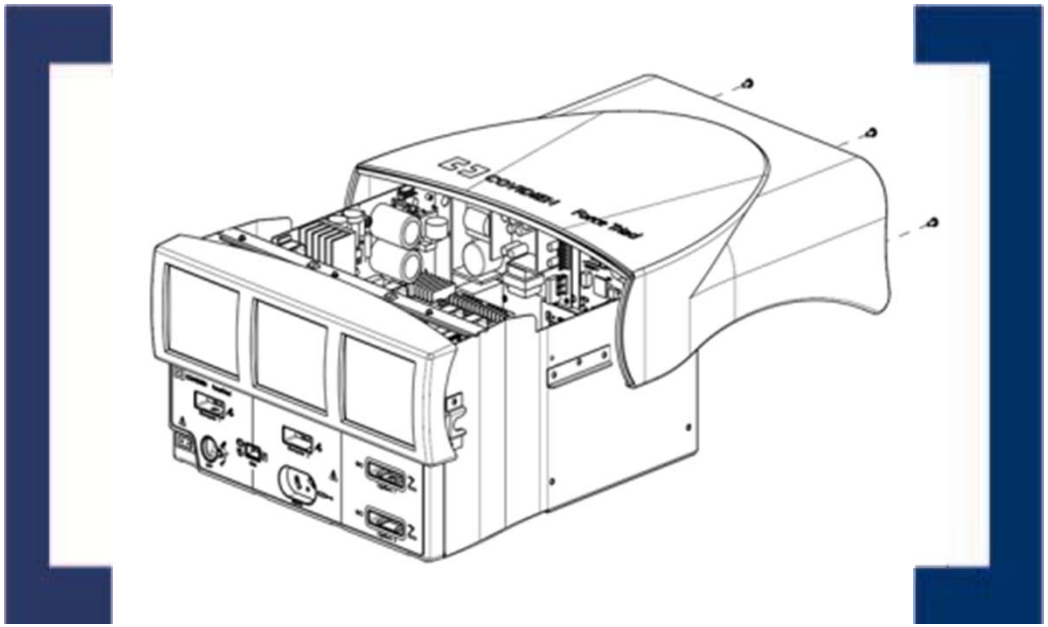
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E263 - ERR_NR_INVALID_STATE

he E263 error code is designated and issued signify that the system has entered an valid state and generated an error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

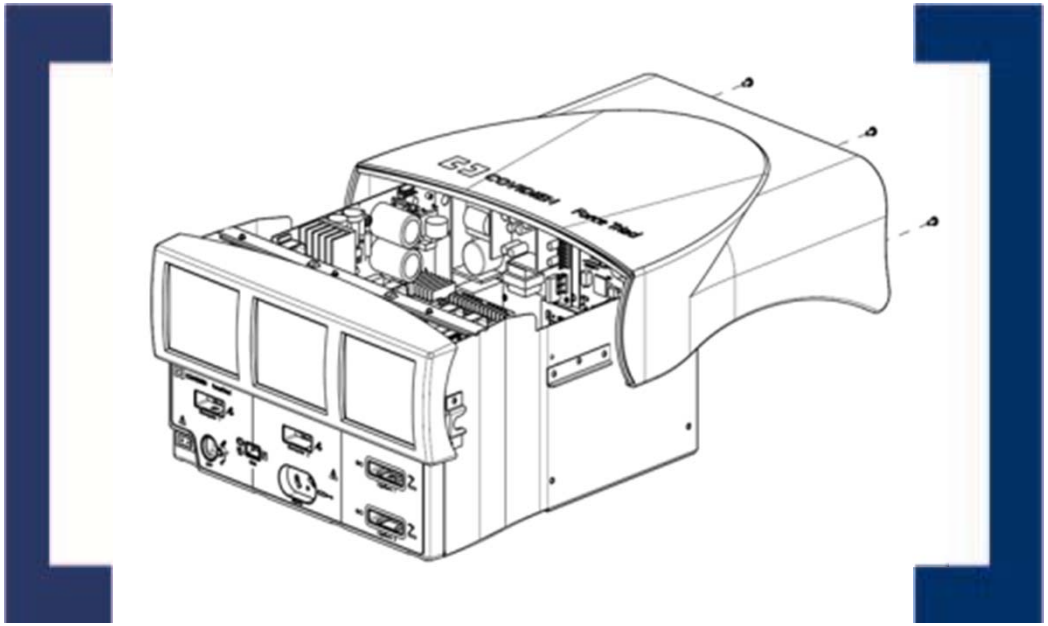
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E264 - ERR_NR_UNSUPPORTED_CMD

he E264 error code is designated and issued signify that the system has interrupted a ommand that is not supported and generated nd error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

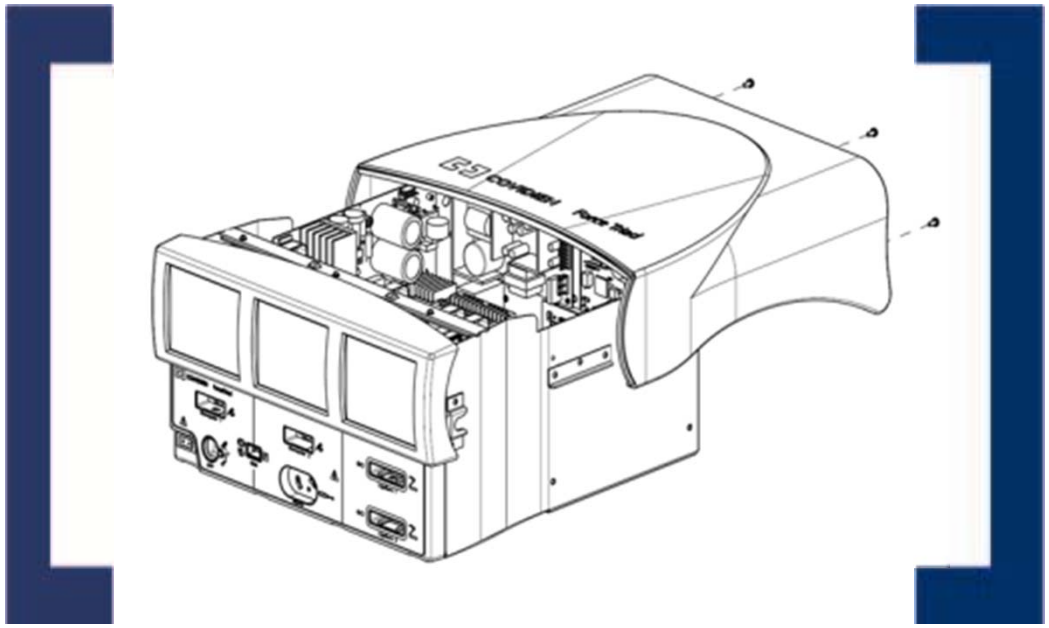
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E265 - ERR_NR_ACCESS_FUNCTION

he E265 error code is designated and issued signify that the system has generated an ror while performing an access function.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

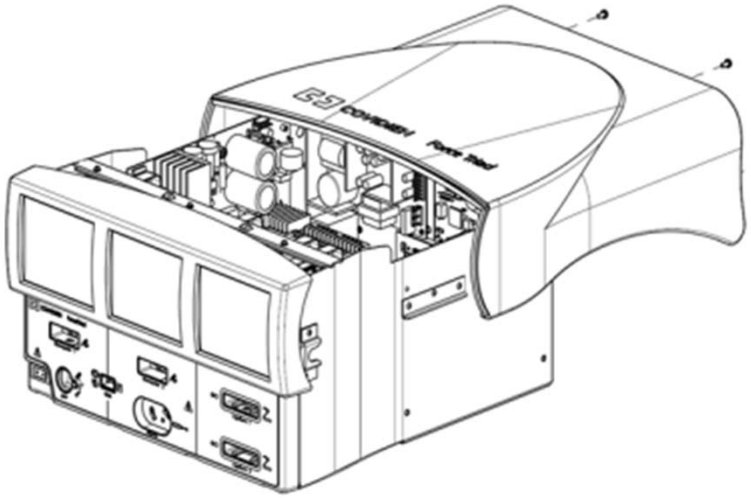
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E266 - ERR_NR_TIMEOUT_ERROR

he E266 error code is designated and issued signify that the system has generated a meout and caused an error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

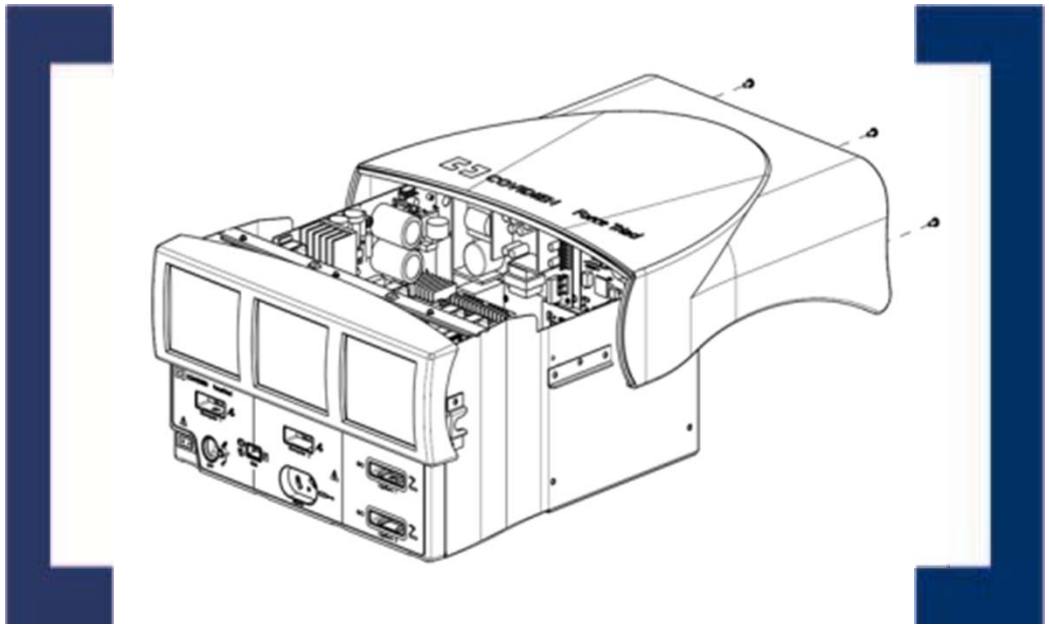
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Verify the ribbon cables and FTSW cable connections are securely seated.
4. Perform a level 6 calibration as outlined in the Calibration Section.

E267 - ERR_NR_GEN_ERROR

he E267 error code is designated and issued signify that the system has generated an known system error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

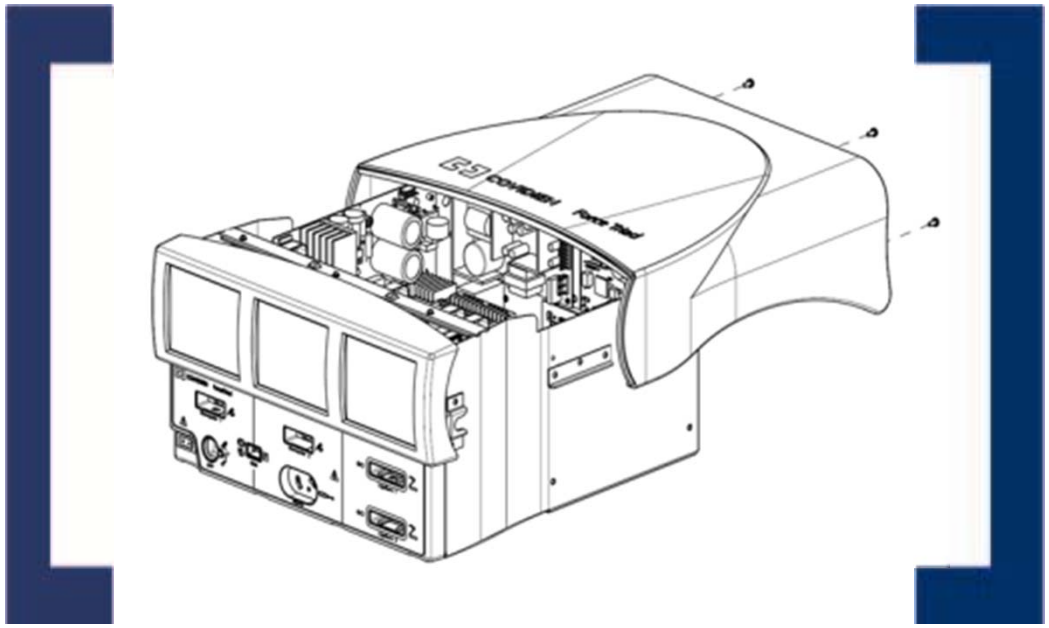
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E268 - ERR_NR_SELF_TEST_ERROR

he E268 error code is designated and issued signify that the system has failed the initial art-up self test and generated an error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

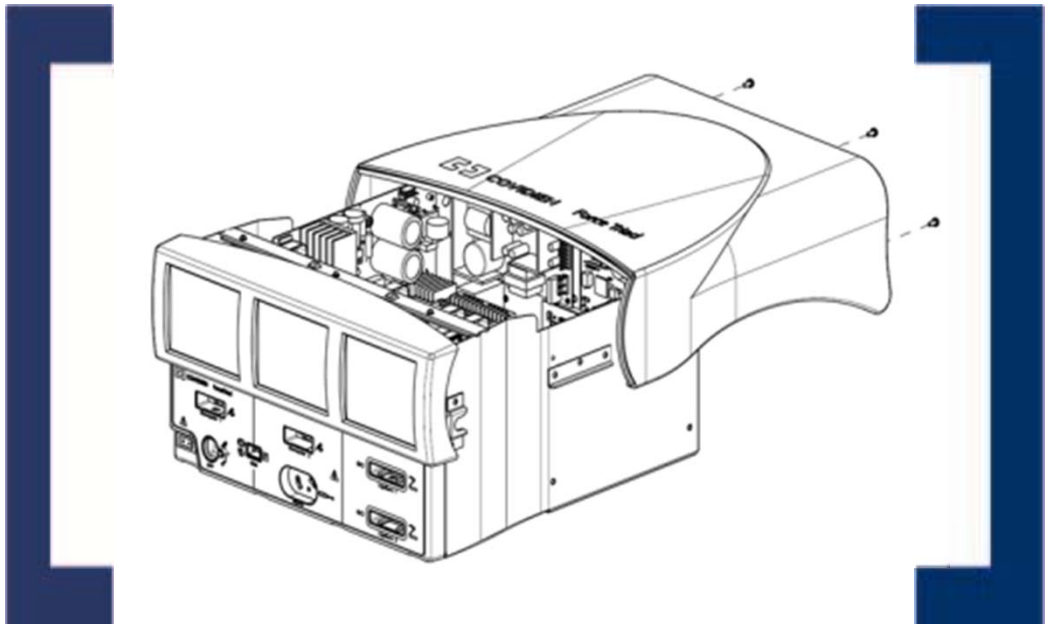
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E269 - ERR_NR_DISPLAY_ERROR

he E269 error code is designated and issued signify that the system has generated an ror due to a display issue during start-up.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Displays Cables
- Displays
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

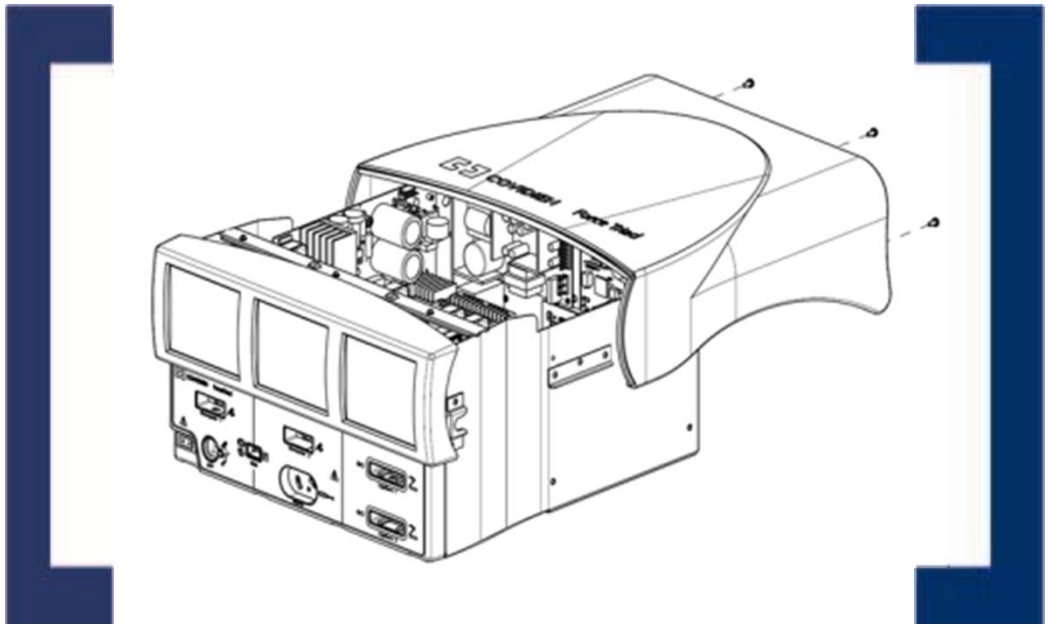
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E270 - ERR_NR_AUDIBLE_ERROR

he E270 error code is designated and issued signify that the system has failed the udible self test and generated an error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Foot Switch Board
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

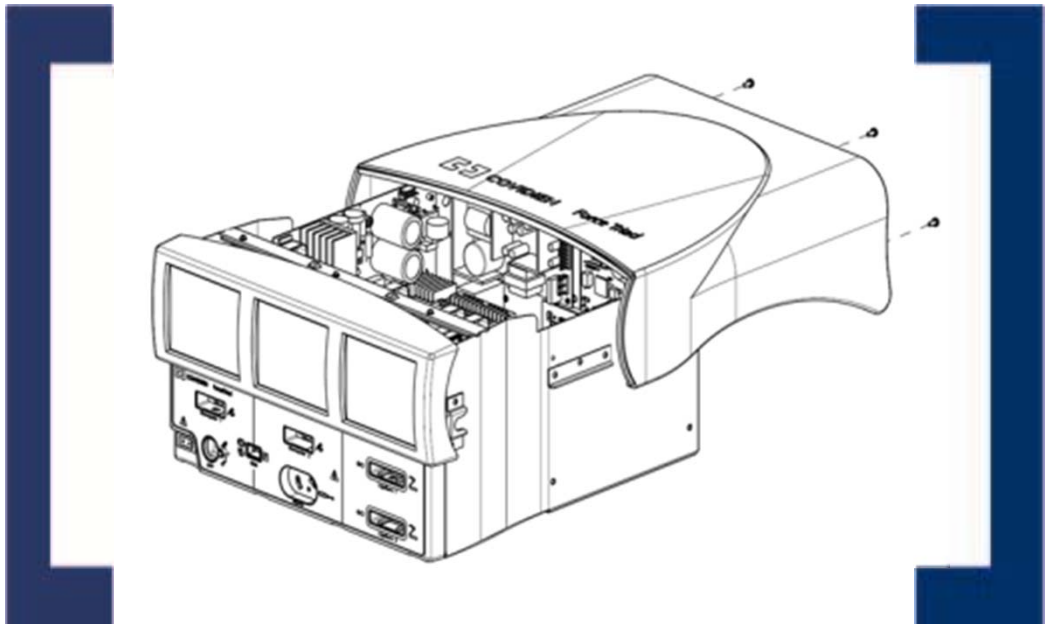
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E271 - ERR_NR_STUCK_BUTTON_ERROR

he E271 error code is designated and issued signify that the system has generated an ror during the self-test due to a stuck button.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board
- Displays
- FTSW Board



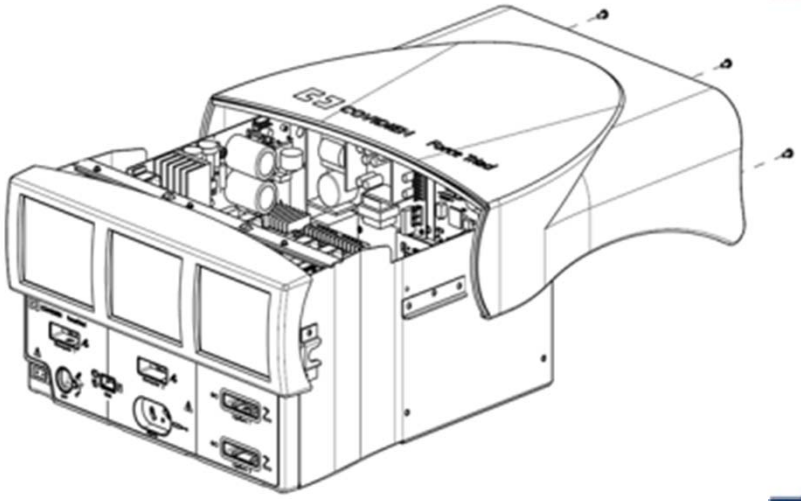
NON-COMPONENT ACTIONS INSTRUCTION

1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E272 – NOT_USED

he E272 error code is not used.

hould you have a version of ForceTriad that elivers a E272 error code, please contact our local Covidien Customer Service presentative for further information.

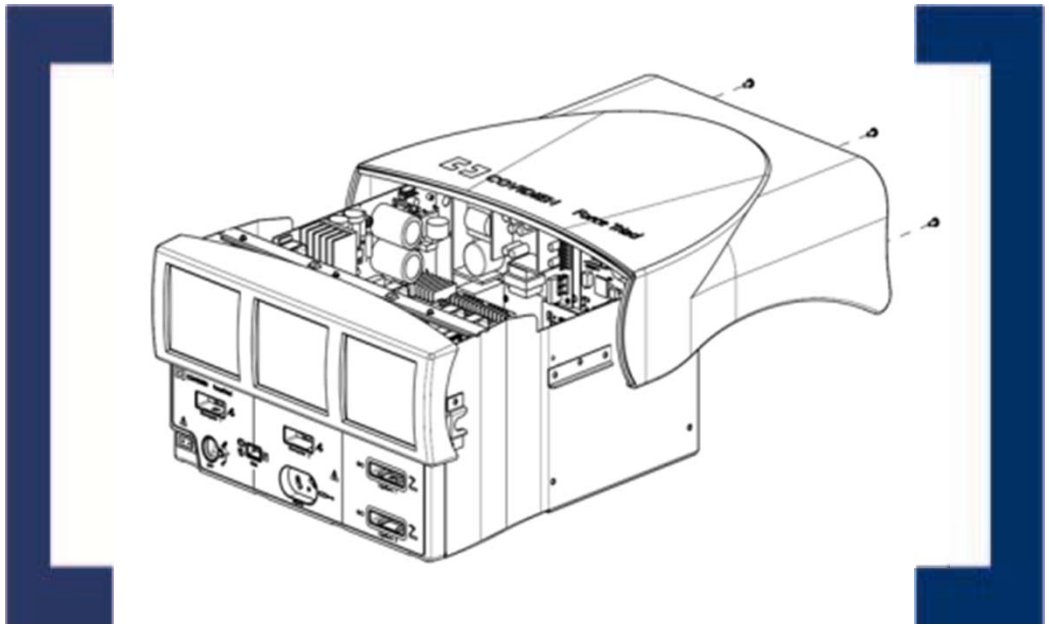


E273 - ERR_NR_INTER_PROC_COM_ERROR

he E273 error code is designated and issued signify that the system has generated an ror during self-test due to an inter-processor ommunication issue.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board

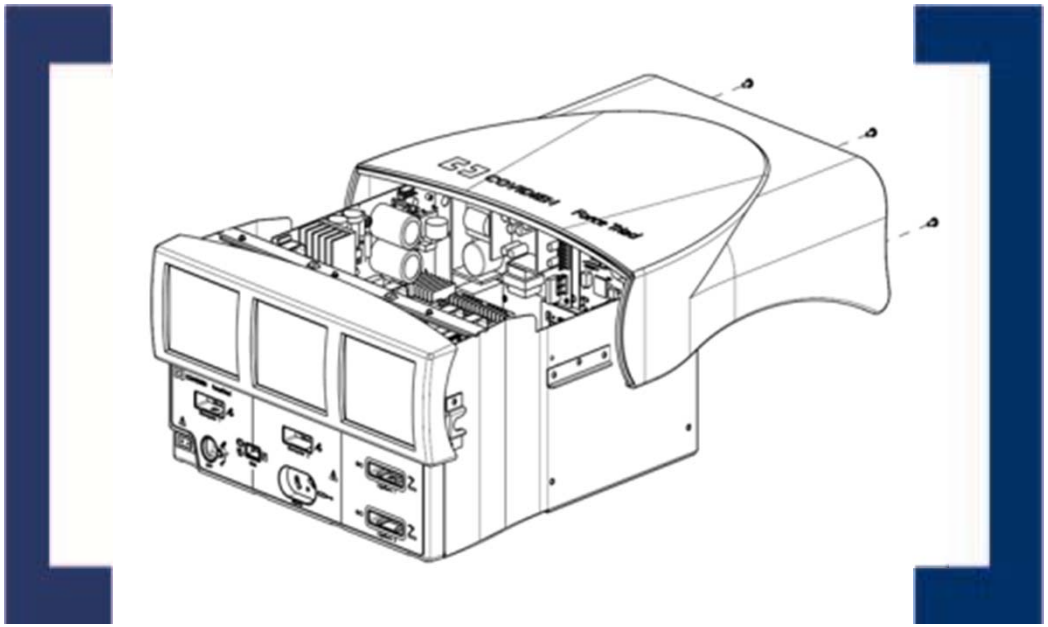


NON-COMPONENT ACTIONS INSTRUCTION

1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E274 - ERR_NR_CRITICAL_DATA_ERROR

he E274 error code is designated and issued signify that the system has generated an ror during self-test where the unit did not ceive critical information required for start-. This is most commonly seen when alibration is required on the unit.



ON-COMPONENT ACTIONS

- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS

- Scanners
- Controller Board
- Scanner Cables

NON-COMPONENT ACTIONS INSTRUCTION

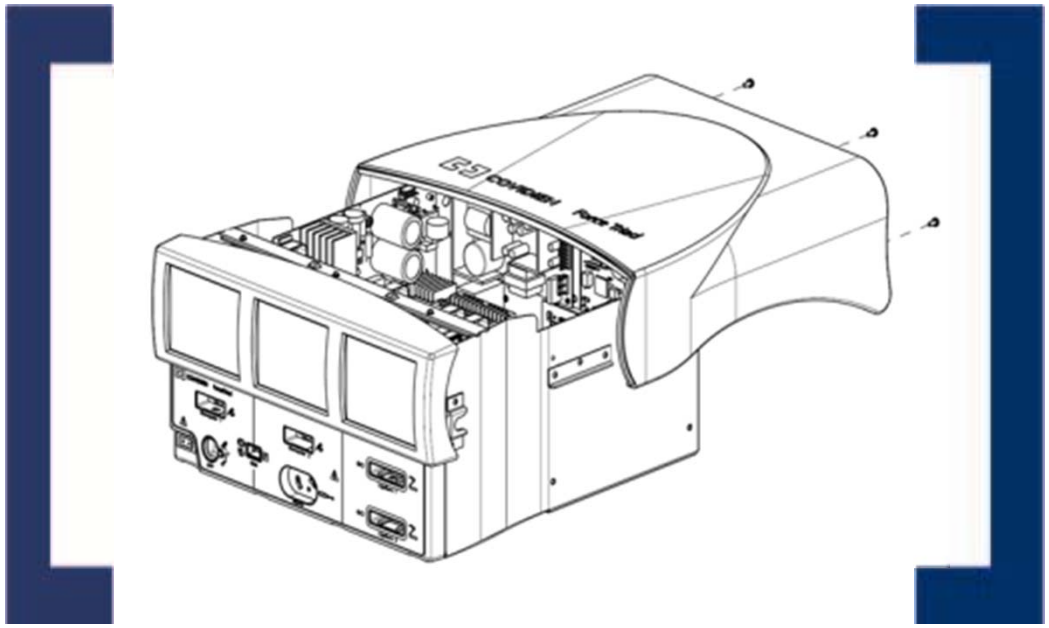
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E275 - ERR_NR_MULTI_TASKING_ERROR

he E275 error code is designated and issued signify that the system has generated an ror during self-test while multi-tasking.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

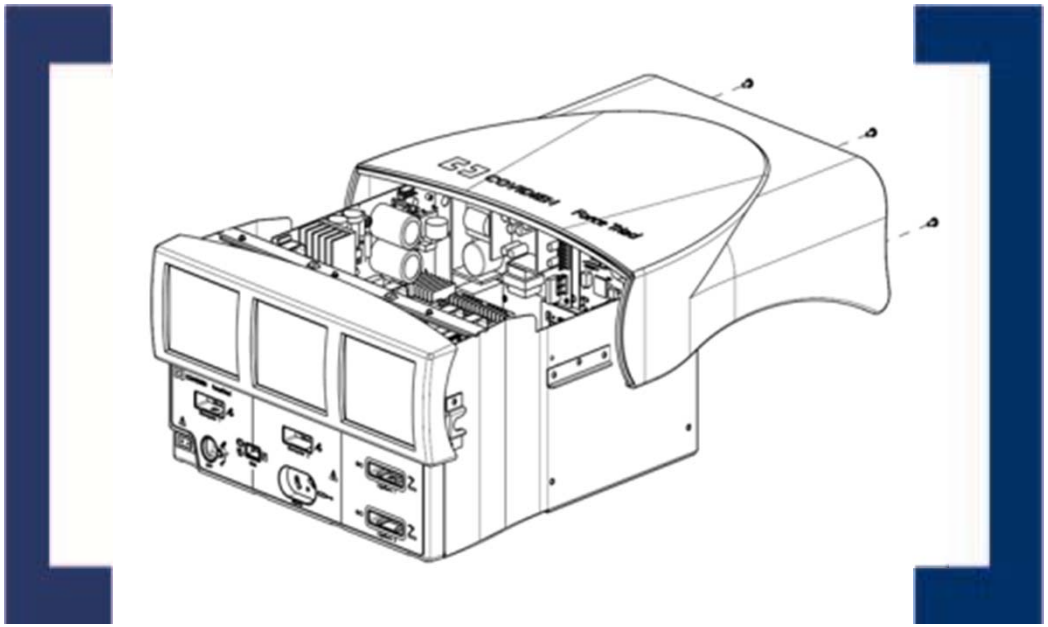
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Verify the ribbon cables and FTSW cable connections are securely seated.
4. Perform a level 6 calibration as outlined in the Calibration Section.

E276 - ERR_NR_ANALOG_SENSOR_ERROR

he E276 error code is designated and issued signify that the system has generated an ror during self-test while testing an analog ensor.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- RF Board



NON-COMPONENT ACTIONS INSTRUCTION

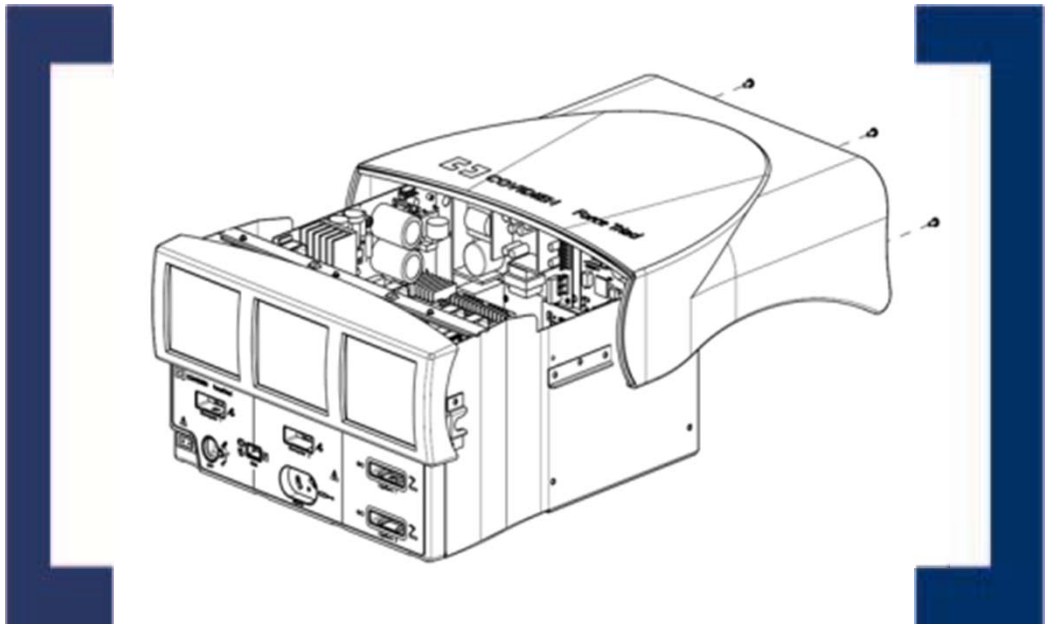
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E277 - ERR_NR_RF_SHUT_DWN_1_ERROR

he E277 error code is designated and issued signify that the system has generated an ror during RF self-test #1 while attempting to hutdown the RF generation.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- HVDC Board
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

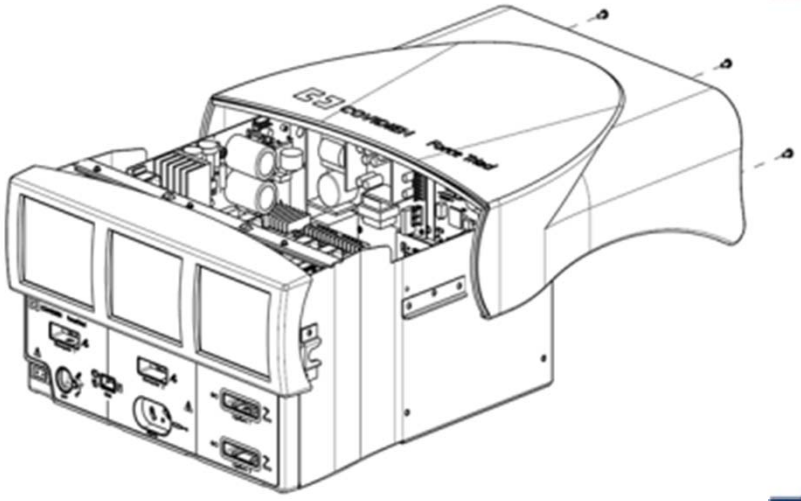
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E278 - ERR_NR_RF_SHUT_DWN_2_ERROR

he E289 error code is designated and issued signify that the system has generated an ror during RF self-test #2 while attempting to hutdown the RF generation.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- RF Board



NON-COMPONENT ACTIONS INSTRUCTION

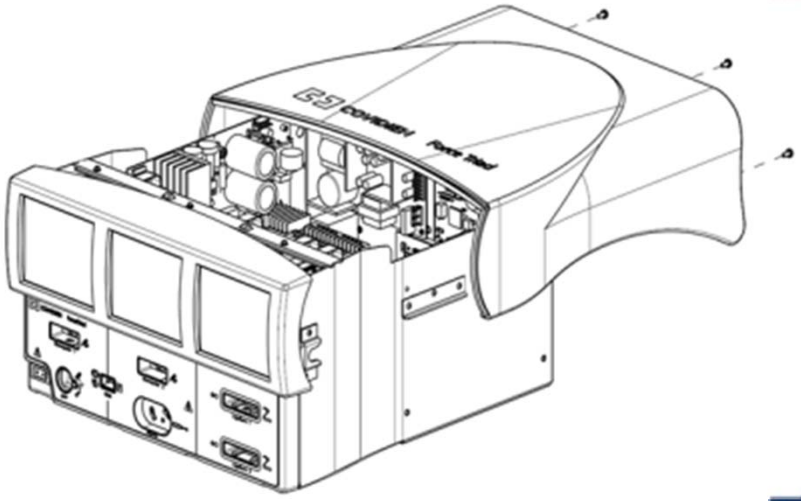
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E279 - ERR_NR_RF_SHUT_DWN_3_ERROR

he E279 error code is designated and issued signify that the system has generated an ror during RF self-test #3 while attempting to hutdown the RF generation.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- RF Board



NON-COMPONENT ACTIONS INSTRUCTION

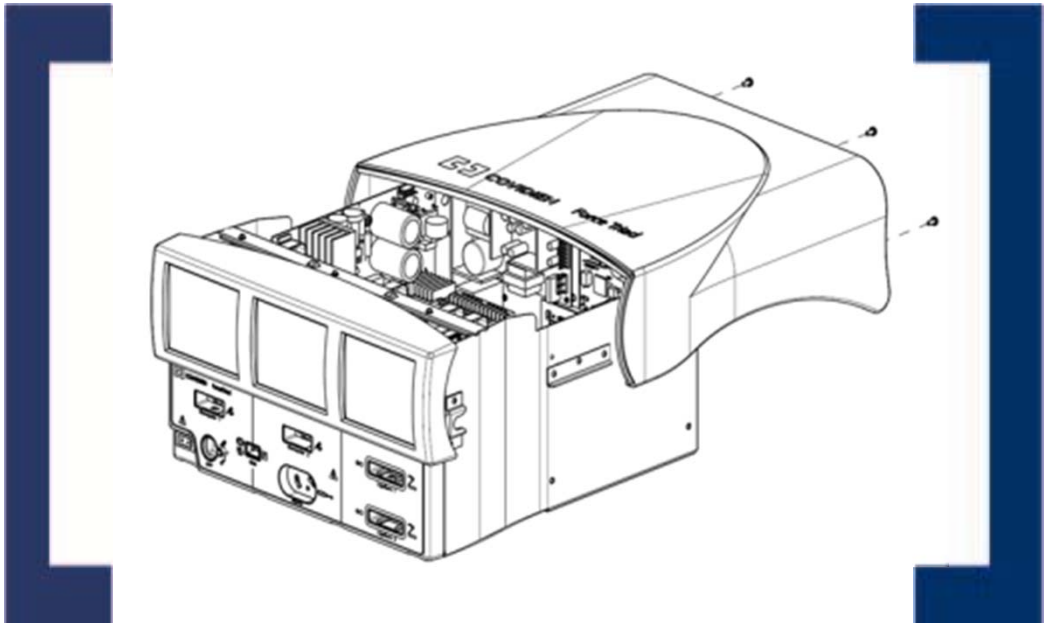
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E280 - ERR_NR_TIMEBASE_ERROR

he E280 error code is designated and issued signify that the system has generated an ror during self-test while attempting to ompare the time base.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

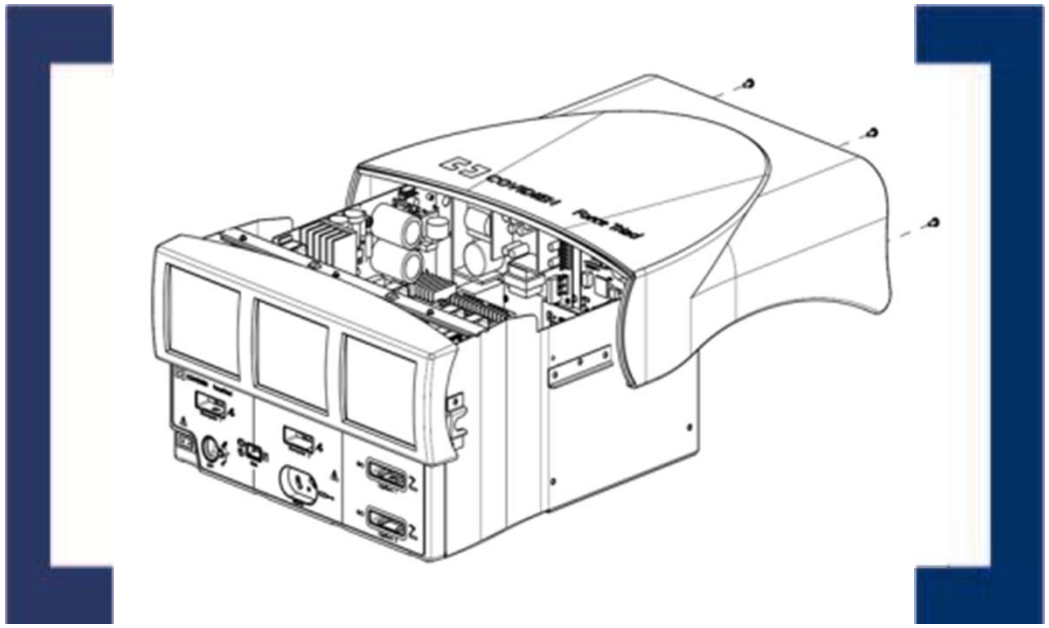
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E281 - ERR_NR_SYS_WATCH_DOG_ERROR

he E281 error code is designated and issued signify that the system has generated a ommunication error during self-test.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

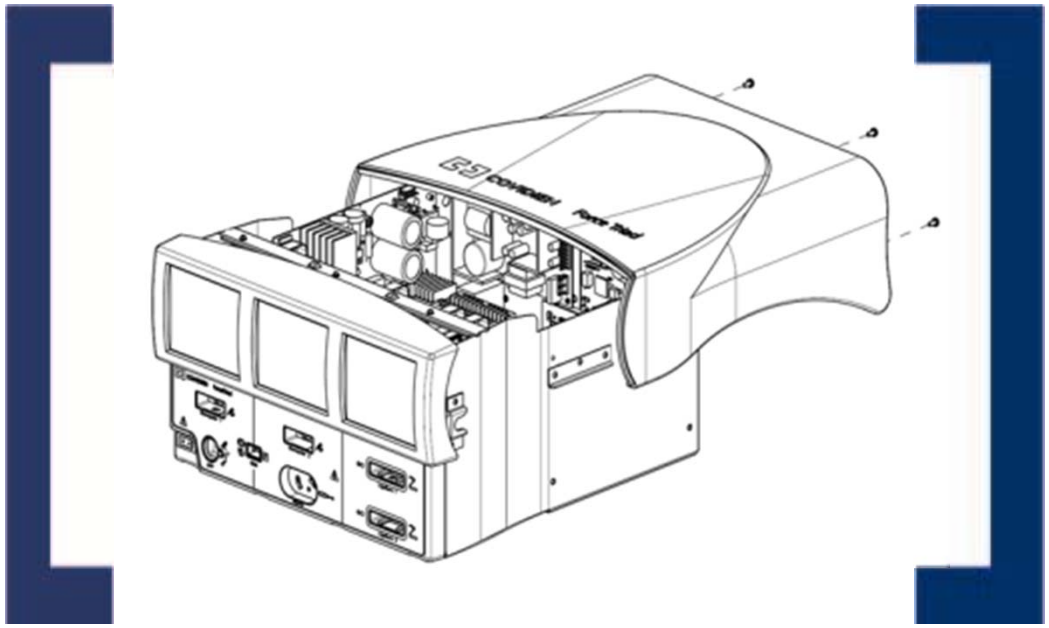
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E282 - ERR_NR_ICL_PROG_ERROR

he E282 error code is designated and issued signify that the system has generated an ror during self-test while attempting to pull formation from the ICL chip on the controller oard.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

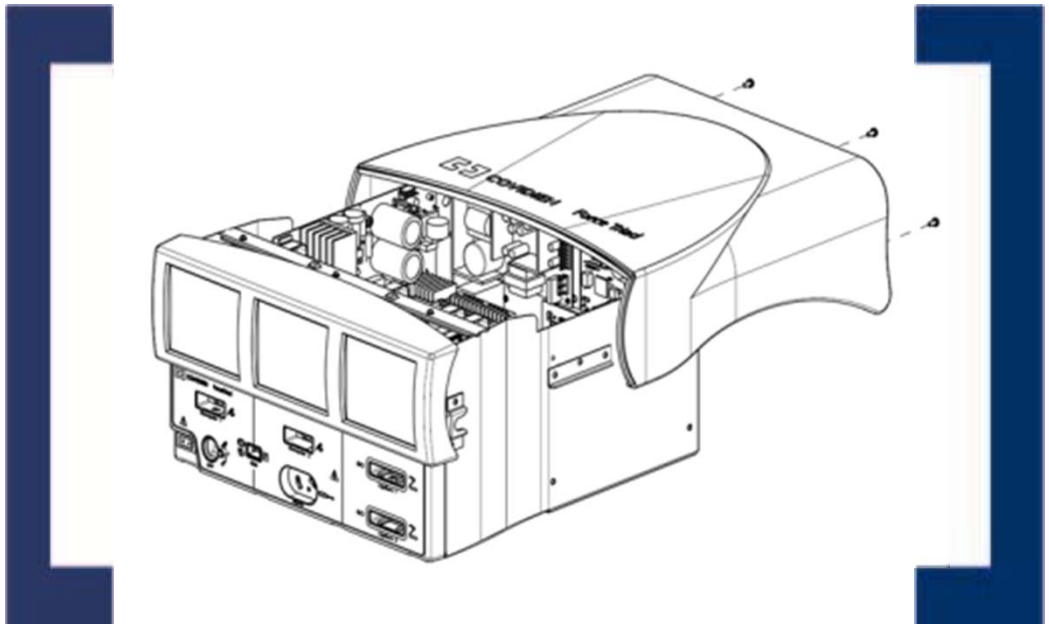
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E283 - ERR_NR_RAM_MEMORY_ERROR

he E283 error code is designated and issued signify that the system has generated a AM error during self-test.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

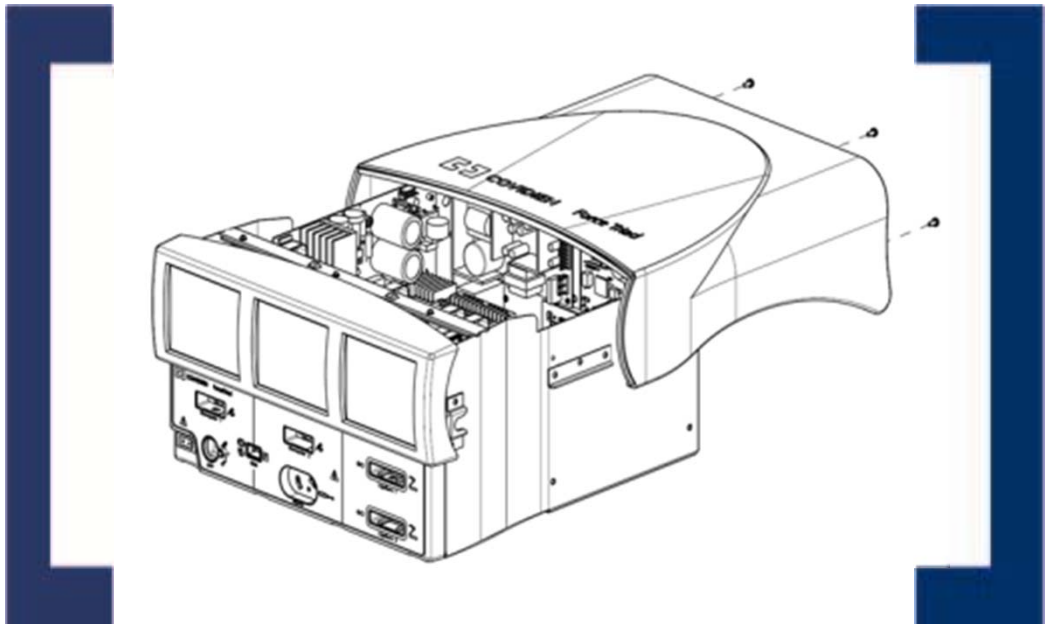
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E284 - ERR_NR_FLASH_MEMORY_ERROR

he E284 error code is designated and issued signify that the system has generated a ash error during self-test.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

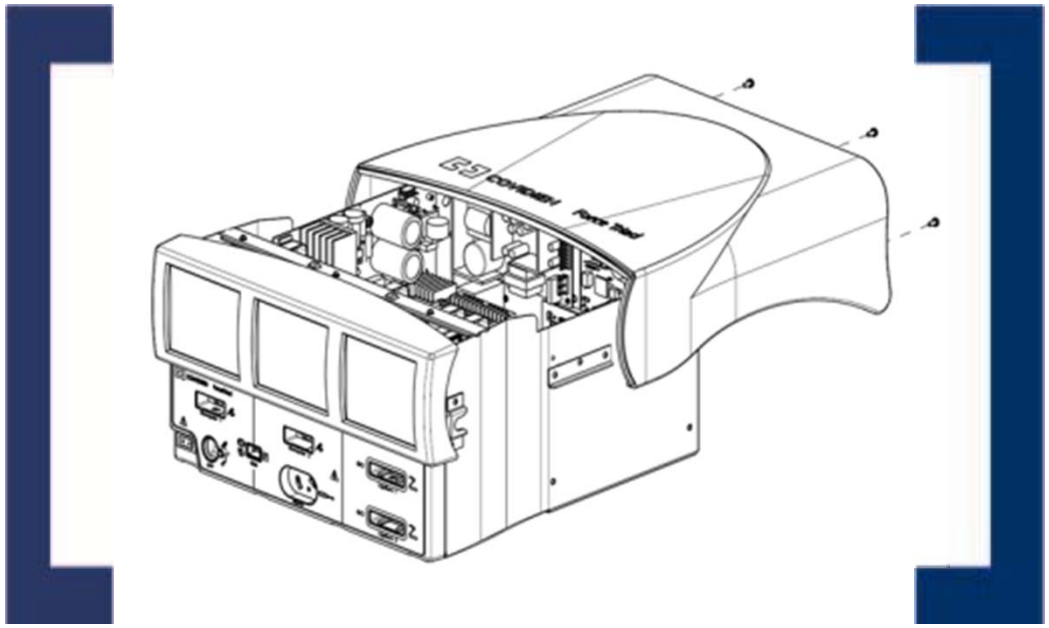
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E285 - ERR_NR_INVALID_CONFIG_DATA

he E285 error code is designated and issued signify that the system has generated an ror during self-test. This particular error is to form the user the equipment configuration is ot valid or there is checksum error within the oftware.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

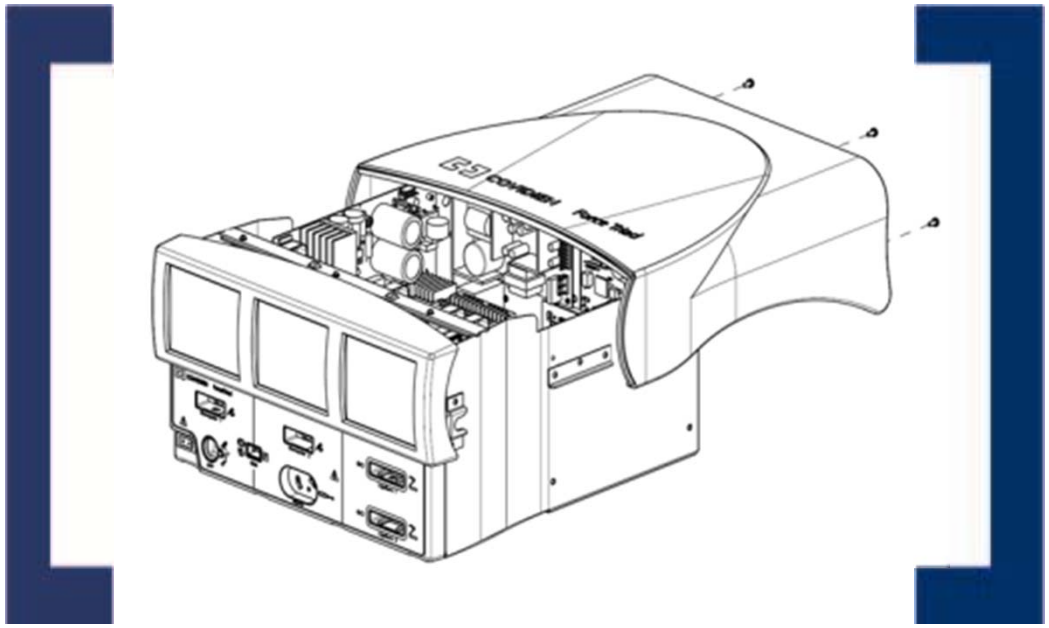
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E286 - ERR_NR_NULL_PTR

he E286 error code is designated and issued signify that the system has generated a oftware error where the null pointer was etected during self-test.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board
- Displays



NON-COMPONENT ACTIONS INSTRUCTION

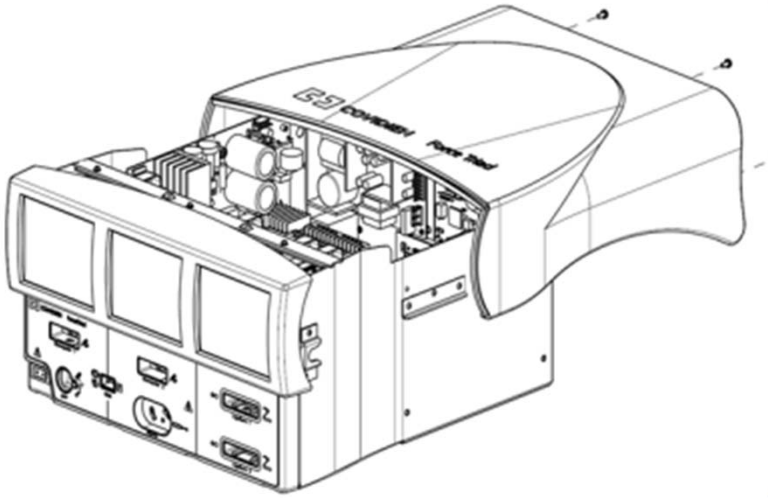
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E287 - ERR_NR_AIE

he E287 error code is designated and issued signify that an absolute integer error has ccurred.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

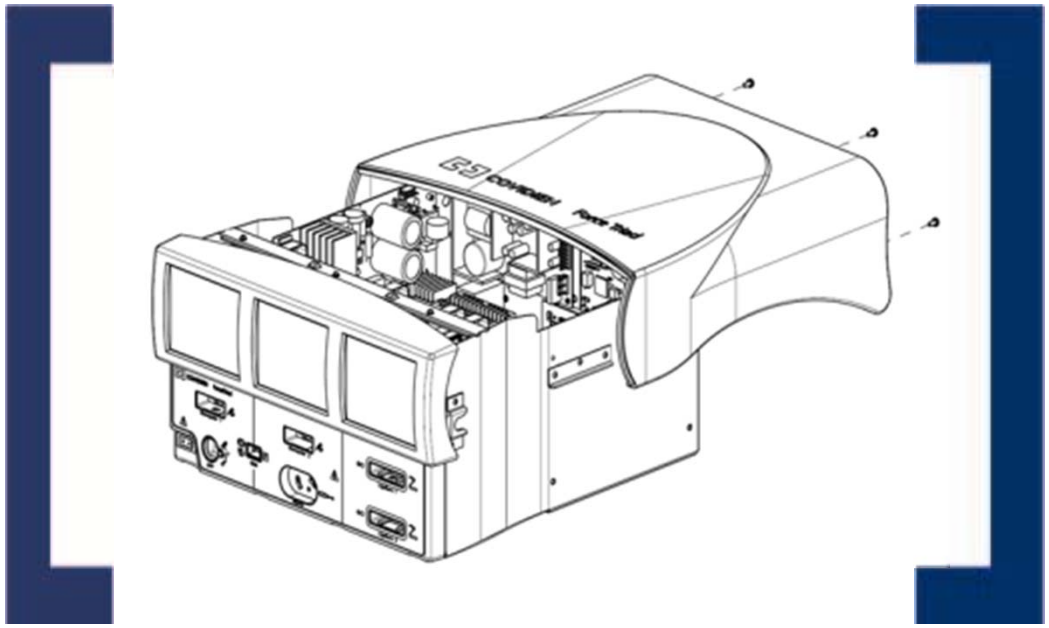
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E288 - ERR_NR_SENSOR_CLIP

he E288 error code is designated and issued signify that the system has developed a SP sensor clip error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- HVDC Board
- RF Board
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

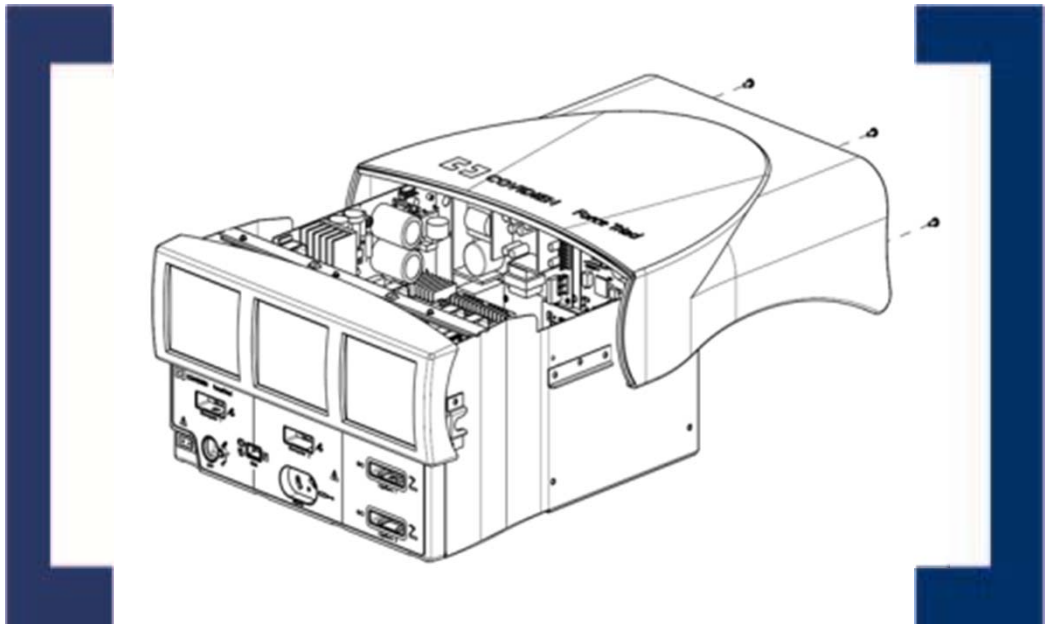
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E289 - ERR_NR_SENSOR_COMPARE

he E289 error code is designated and issued signify that the sensor comparing the DSPs as an error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board
- RF Board
- HVDC Board



NON-COMPONENT ACTIONS INSTRUCTION

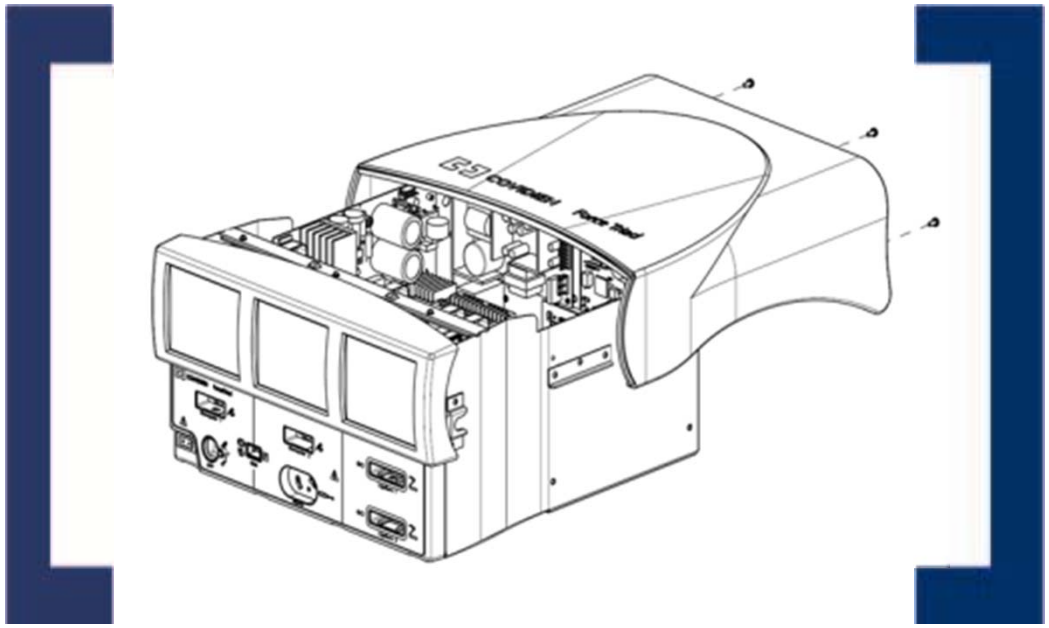
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E290 - ERR_NR_DATA_SAMPLE_ERRORR

he E290 error code is designated and issued signify that the system has generated a ampling error while conducting data sampling the VI.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

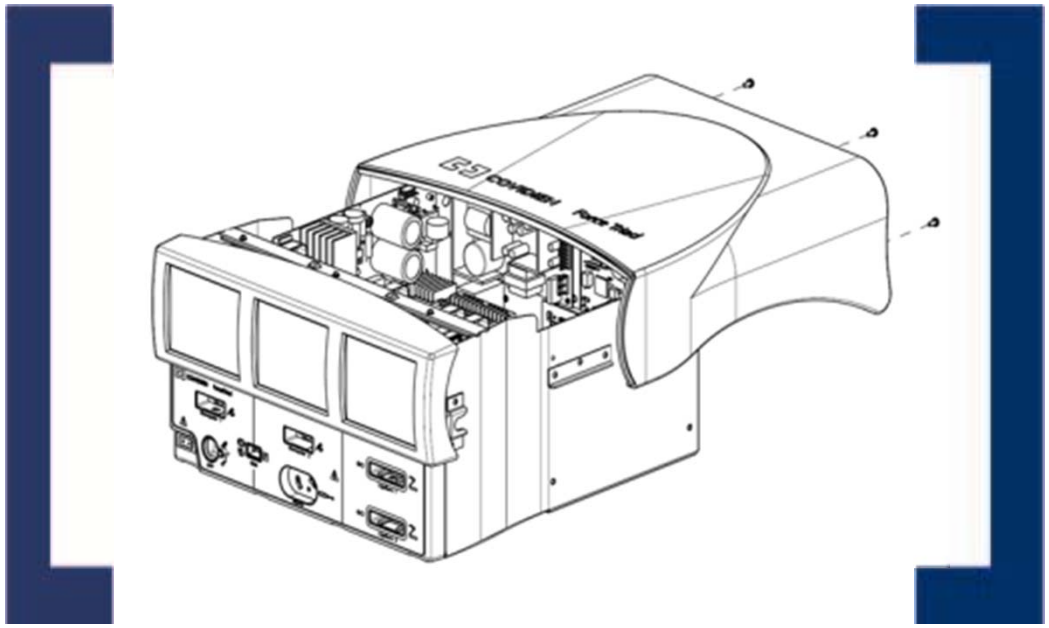
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E291 - ERR_NR_COMM_WD_ERROR

he E289 error code is designated and issued signify that the system has generated a atchdog (communication) error.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

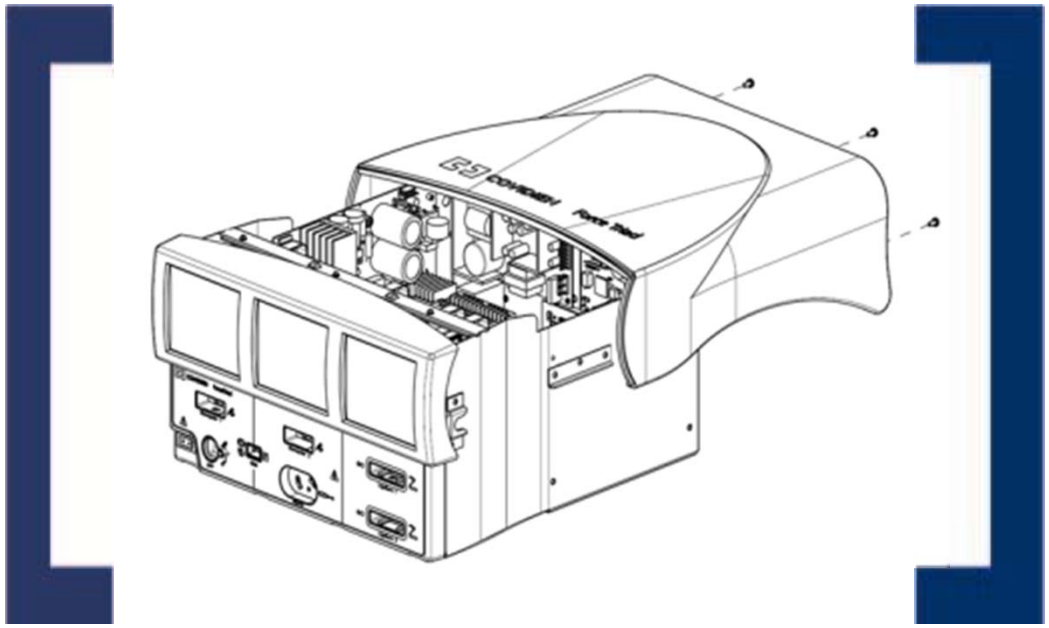
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E292 - ERR_NR_DSP_SW_ERROR

he E292 error code is designated and issued signify that the system has generated a oftware error caused by issues with the DSP.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board
- HVDC Board



NON-COMPONENT ACTIONS INSTRUCTION

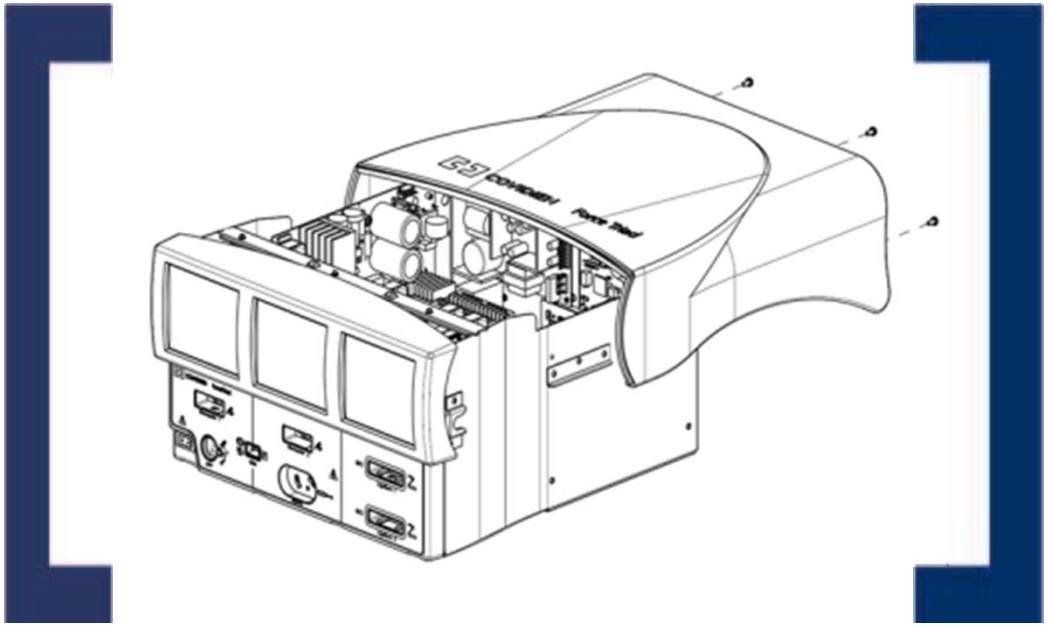
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E293 - ERR_NR_FLASH_ERROR

he E293 error code is designated and issued signify that the system has generated a oftware error while attempting to write to the LASH memory.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

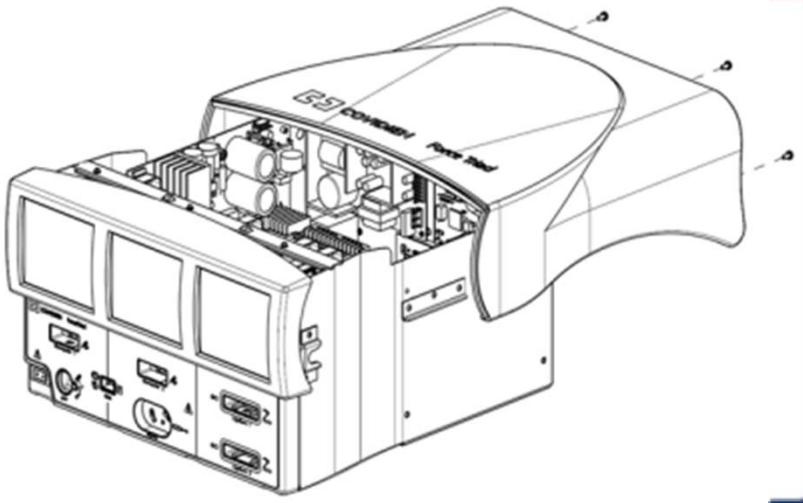
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E294 - ERR_NR_OS_ERROR

he E294 error code is designated and issued signify that the system has generated an perating system error in real time.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

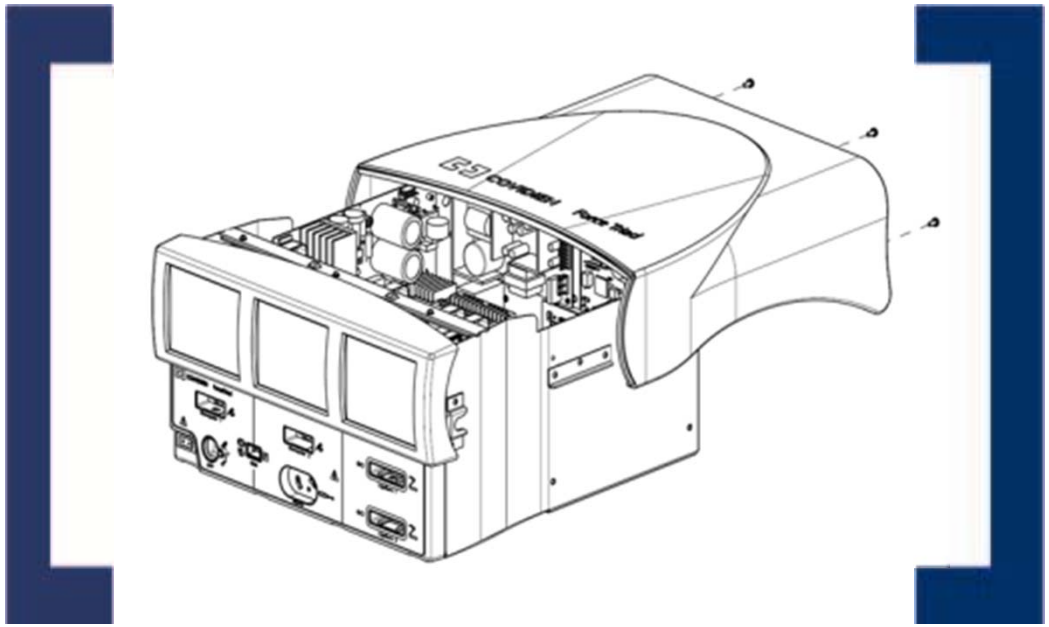
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E295 - ERR_NR_NV_STORE_ERROR

he E295 error code is designated and issued signify that the system has generated a oftware error while attempting to write to the V store.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

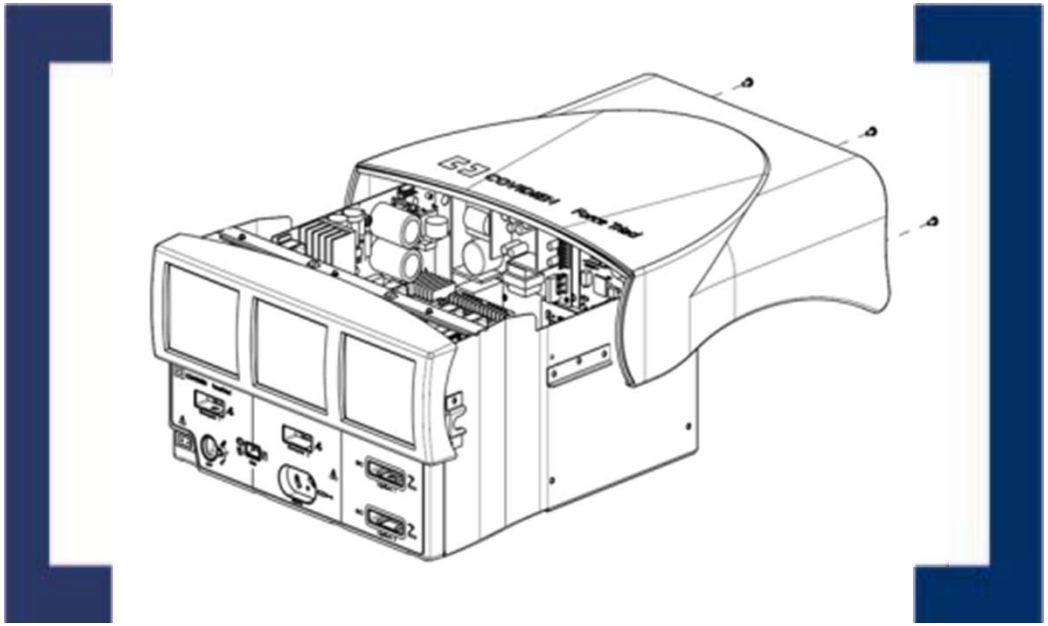
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E296 - ERR_NR_ICL_HB_ERROR

he E289 error code is designated and issued signify that the system has generated an CL error while monitoring the ICL heartbeat.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

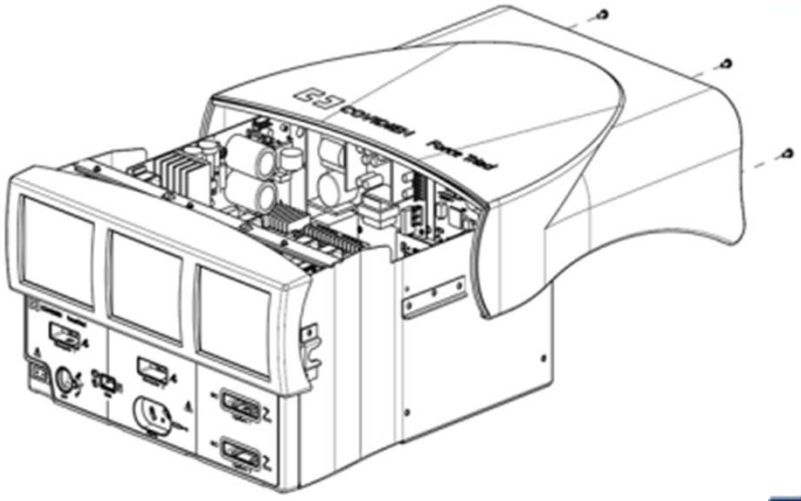
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E297 - ERR_NR_MSG_VIEWER_CTOR_FAIL

he E297 error code is designated and issued signify that the system has generated a oftware error caused by the failed onstruction of the message viewer.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E298 - ERR_NR_SYS_CTRL_REQ_FAIL

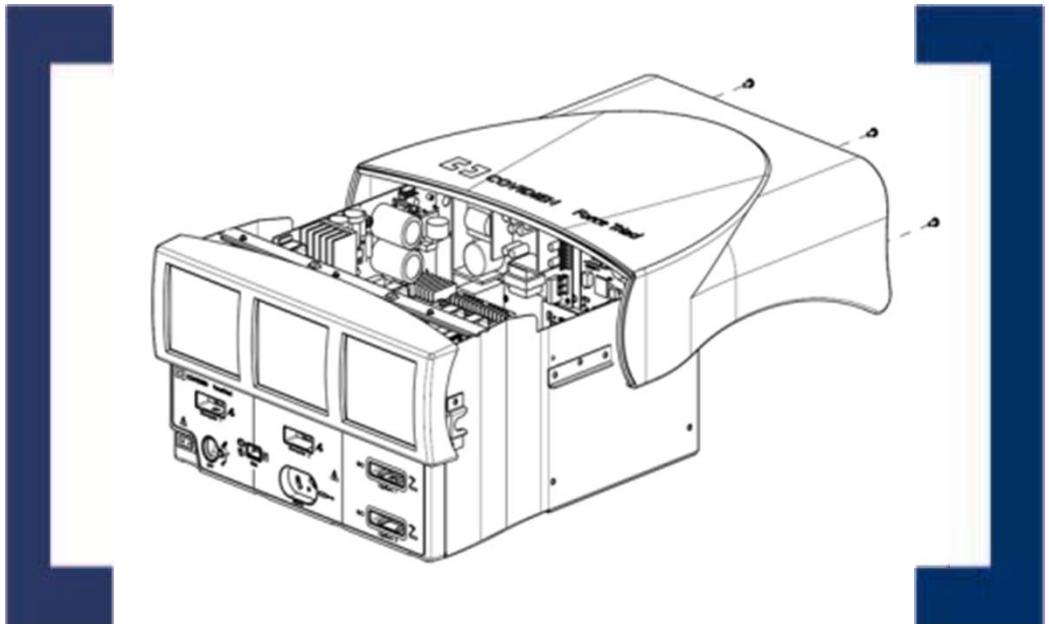
he E298 error code is designated and issued signify that the system has generated a oftware error due to the system denying the quest to bring up the main menus on the ontroller.

ON-COMPONENT ACTIONS

- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS

- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

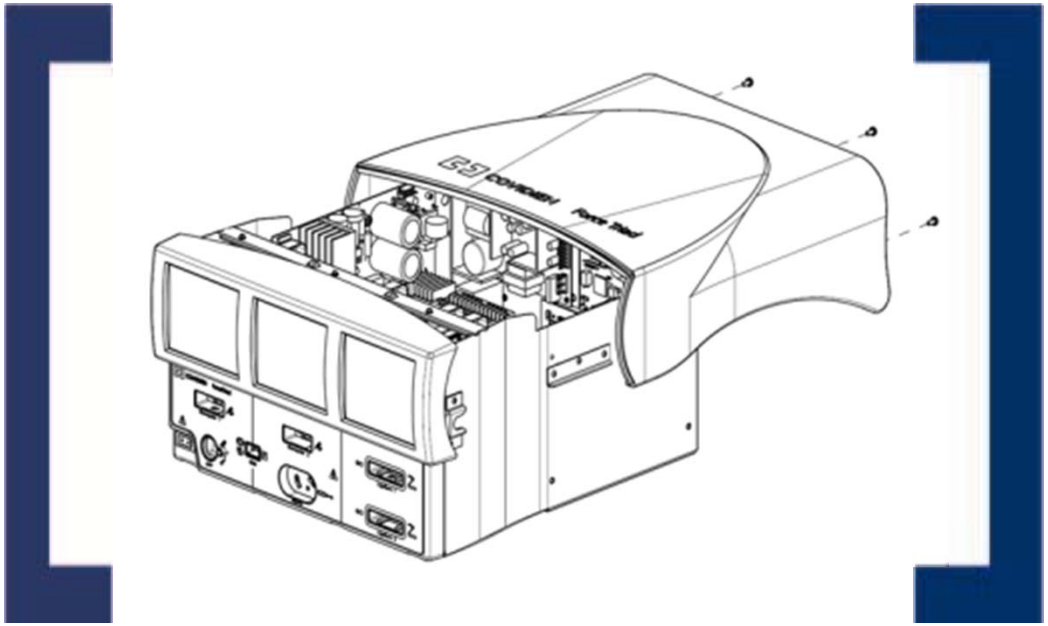
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E299 - ERR_NR_LKG_LIMIT

he E299 error code is designated and issued signify that the system has generated an ror due to leakage on the sensor compare r DSP 2.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board
- RF Board

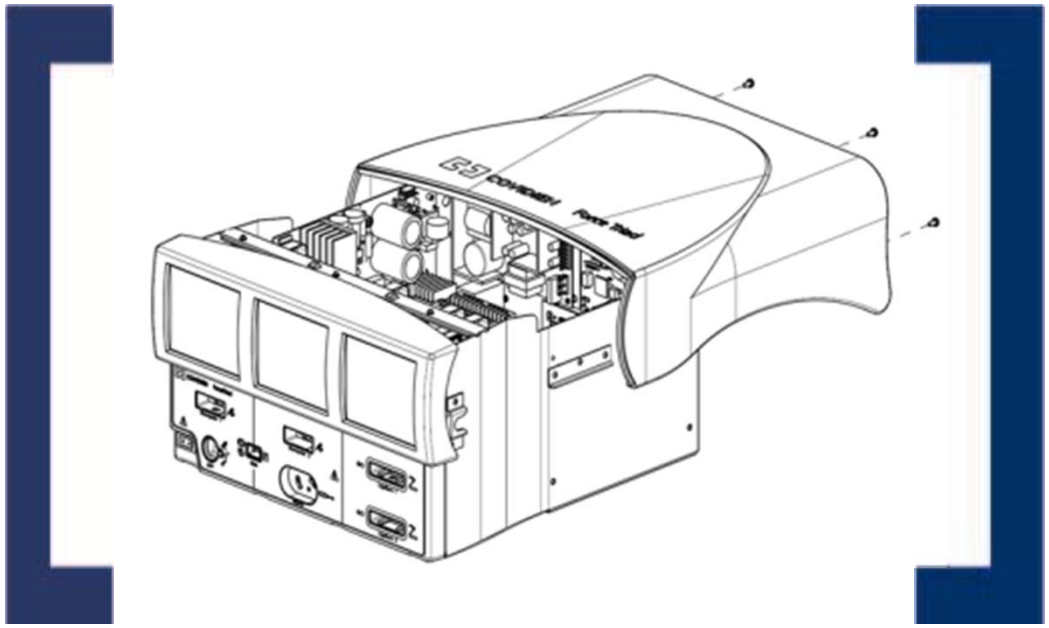


NON-COMPONENT ACTIONS INSTRUCTION

1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E300 - ERR_NR_BAD_SCANNER

he E300 error code is designated and issued signify that the system has generated an ror caused by a bad or malfunctioning canner.



ON-COMPONENT ACTIONS

- Power cycling the system
- Clean the scan stand label
- Clean the glass above scan stand label
- Verify the LED's are functioning
- Capture a scan stand image
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS

- Scanners
- Scanner Cables

NON-COMPONENT ACTIONS INSTRUCTION

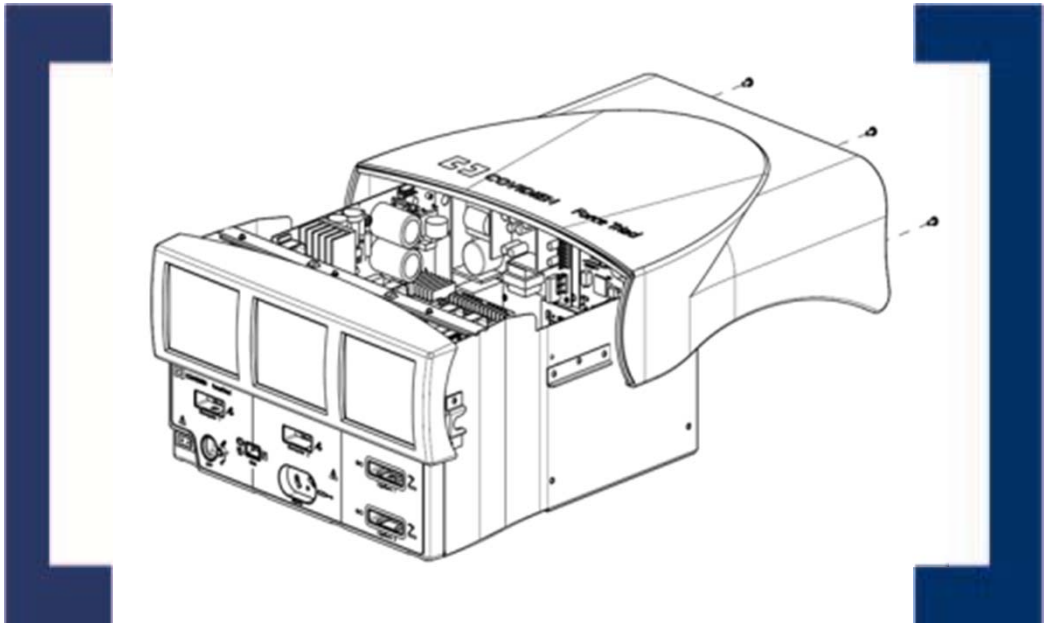
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Clean the scan stand label and glass with a mild solvent and rag.
4. Verify the LED's are functioning as expected.
5. Capture a scan stand image:
   Main Menu→Service→Diagnostics→Bar Code Image

E301 - ERR_NR_LOW_BATTERY

he E301 error code is designated and issued signify that the system has generated an ue to the life of the battery on the controller oard.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

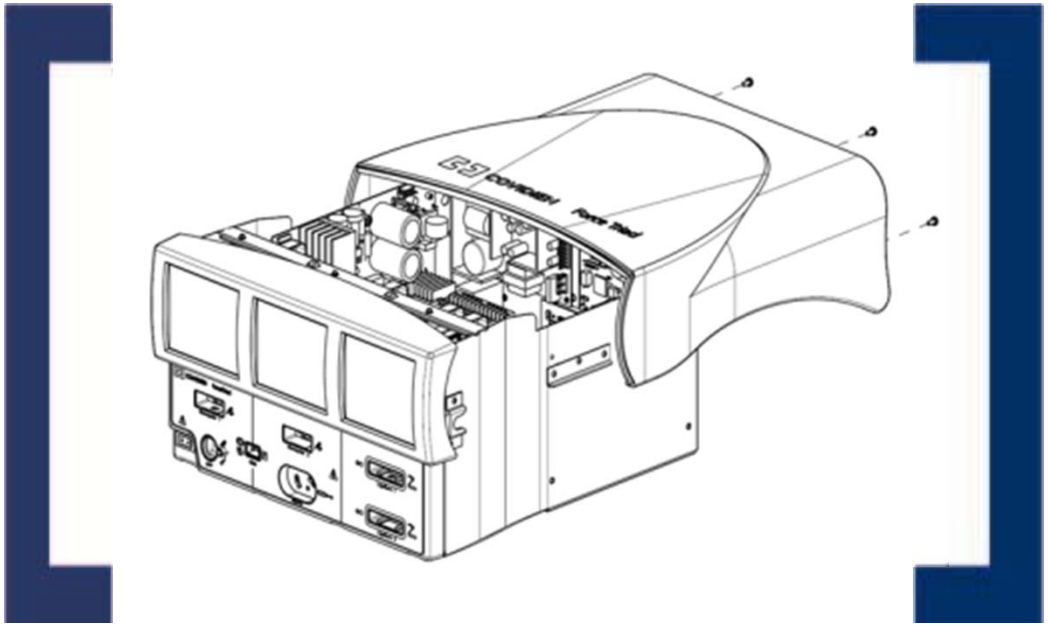
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E302 - ERR_NR_IO_ERROR

he E302 error code is designated and issued signify that the system has generated a oftware error due to a failed attempt to map e I/O memory.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board
- Low Voltage Power Supply



NON-COMPONENT ACTIONS INSTRUCTION

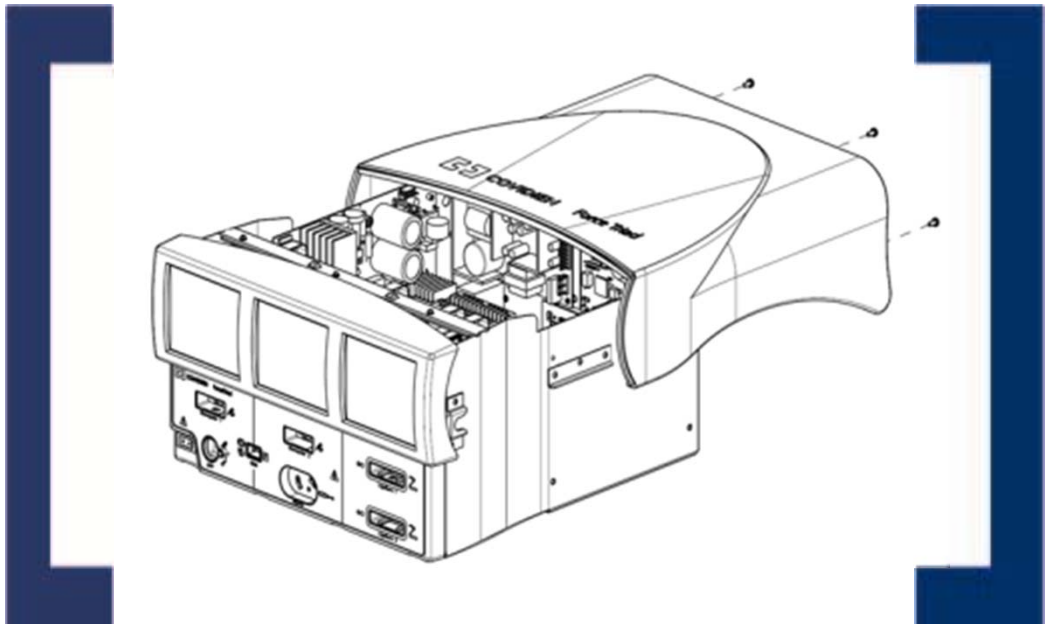
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E303 - ERR_NR_DSP_VERIFY_ERROR

he E303 error code is designated and issued signify that the system has generated a oftware error due to a failed verification of the SP.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

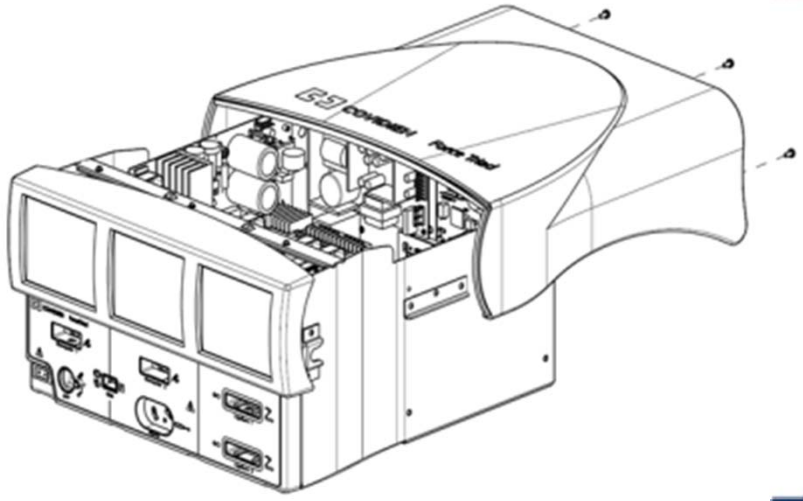
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E304 - ERR_NR_SCREEN_STACK_ERROR

he E304 error code is designated and issued signify that the system has generated a oftware error due to a screen stack anipulation in the AppScreenBase.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Displays
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

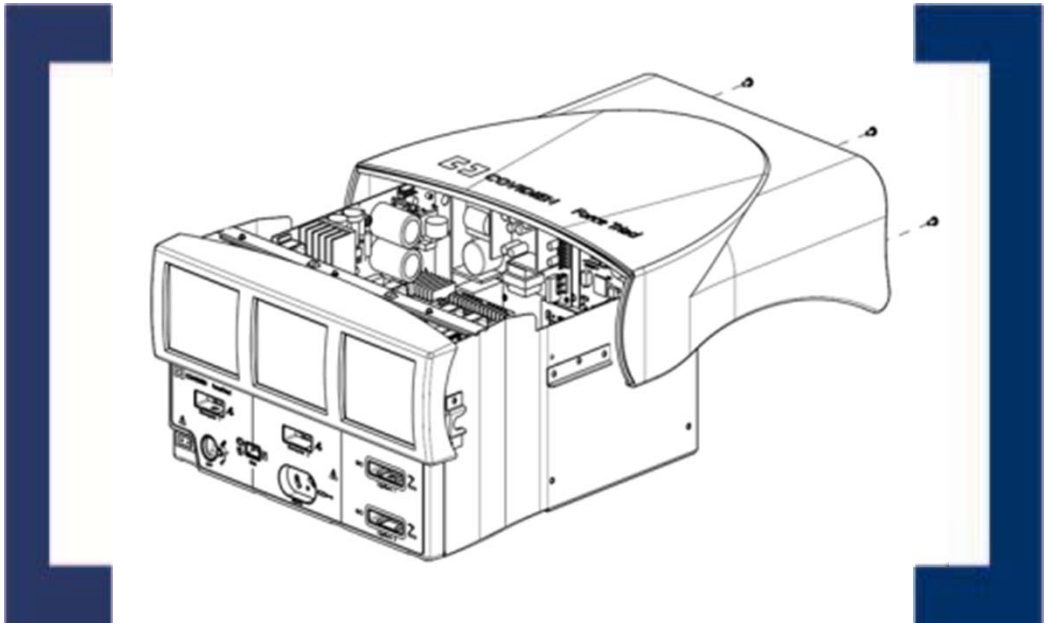
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E305 - ERR_NR_ROM_ERROR

he E305 error code is designated and issued signify that the system has generated a oftware error during the self-test caused by a OM failure.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

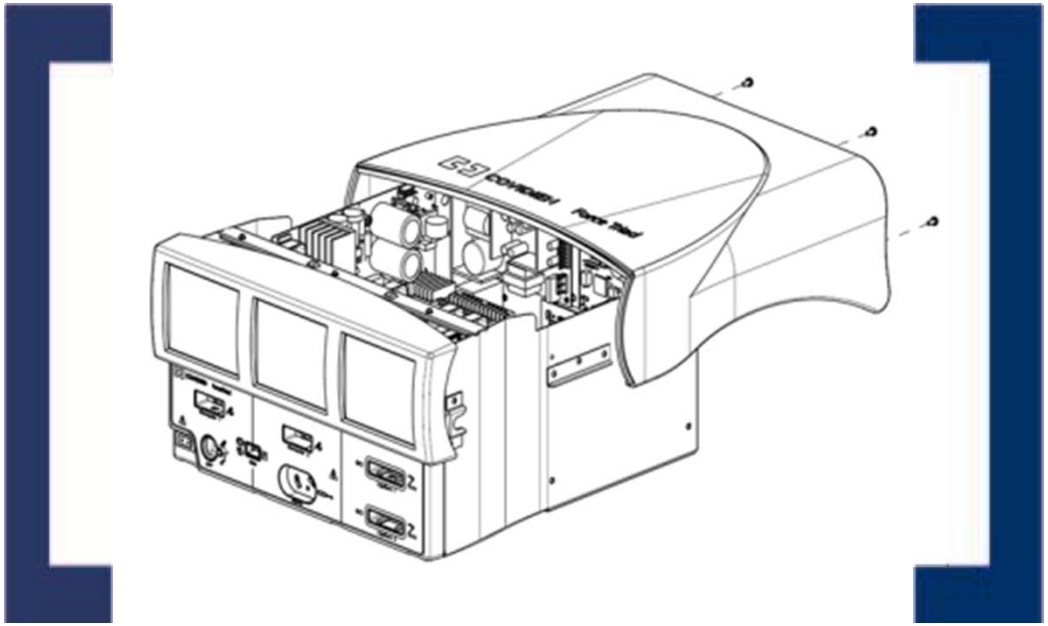
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E306 - ERR_NR_ICL_COMM_LINK_ERROR

he E306 error code is designated and issued signify that the system has generated an ror due to a failed ICL communication link st.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Foot Switch Board
- Low Voltage Power Supply



NON-COMPONENT ACTIONS INSTRUCTION

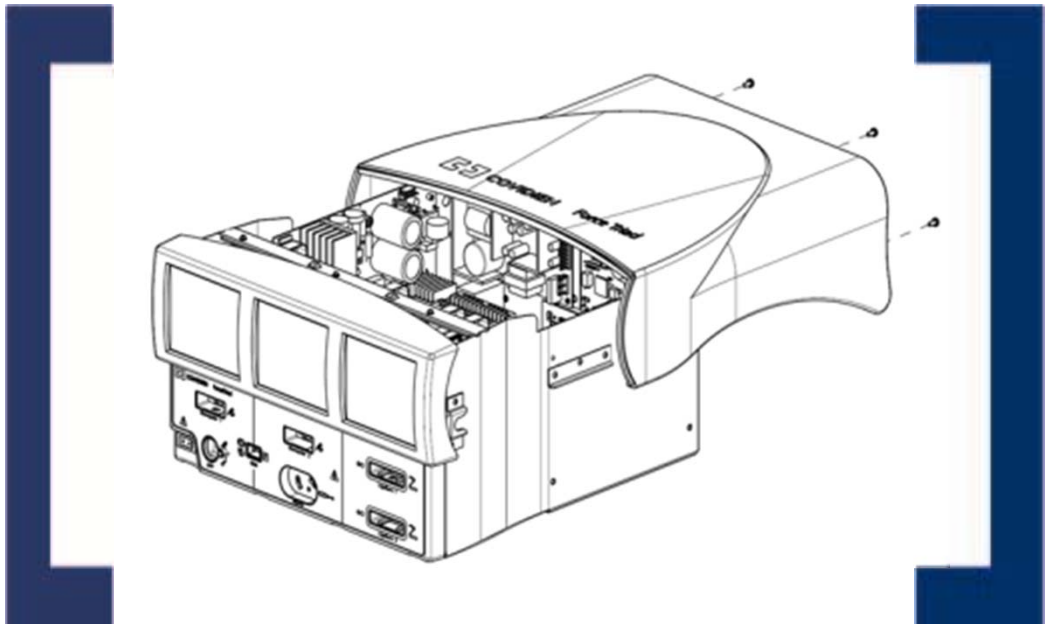
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Verify the ribbon cables and FTSW cable connections are securely seated.
4. Perform a level 6 calibration as outlined in the Calibration Section.

E307 - ERR_NR_RF_TEST4_ERROR

he E307 error code is designated and issued signify that the system has generated an ror due to a failure of shutting down the RF.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- RF Board
- Controller Board
- HVDC Board



NON-COMPONENT ACTIONS INSTRUCTION

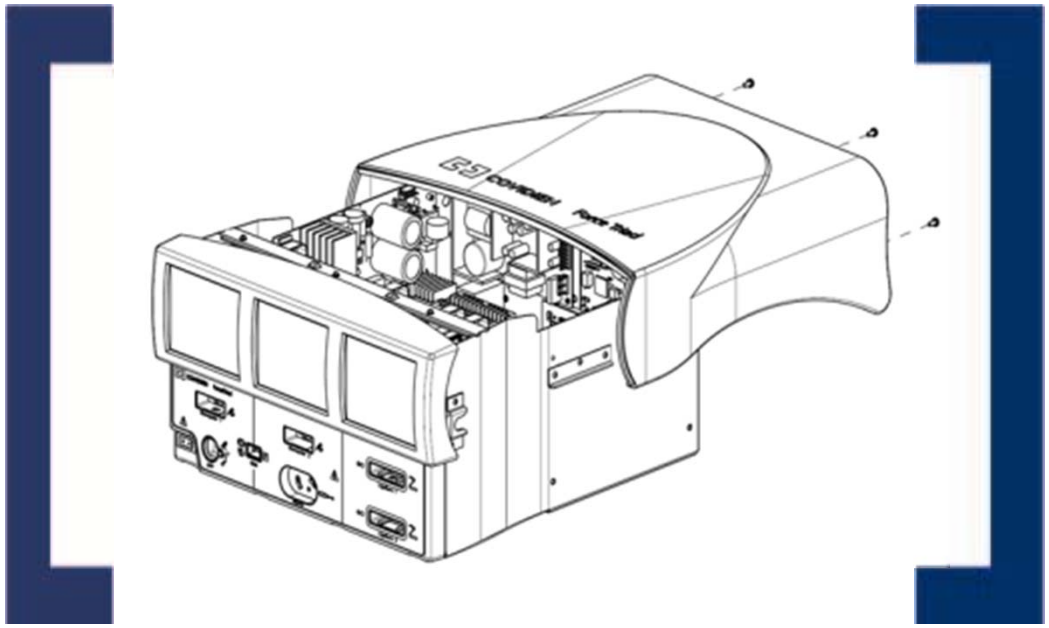
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E308 - ERR_NR_UART_LOOP_BIT

he E308 error code is designated and issued signify that the system has generated an ror due to a loopback feature being turned n.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Scanners
- Scanner Cables
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

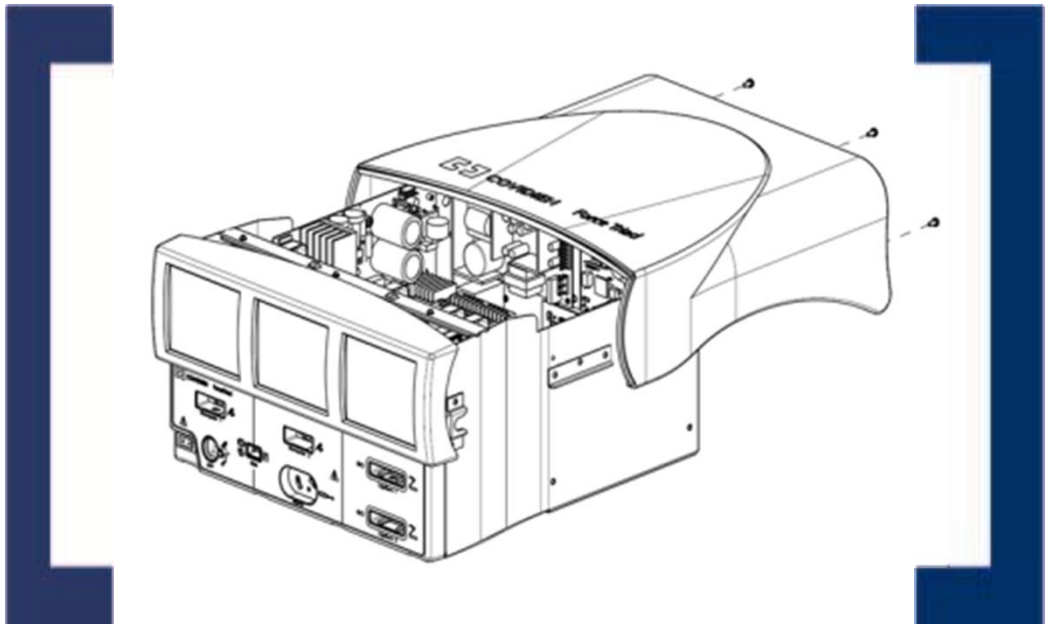
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E309 - ERR_NR_RDM_INVALID_WINDOW

he E309 error code is designated and issued signify that the system has generated an ror due to an invalid window pointer signal enerated by the remote controller.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Displays
- Displays Cables
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

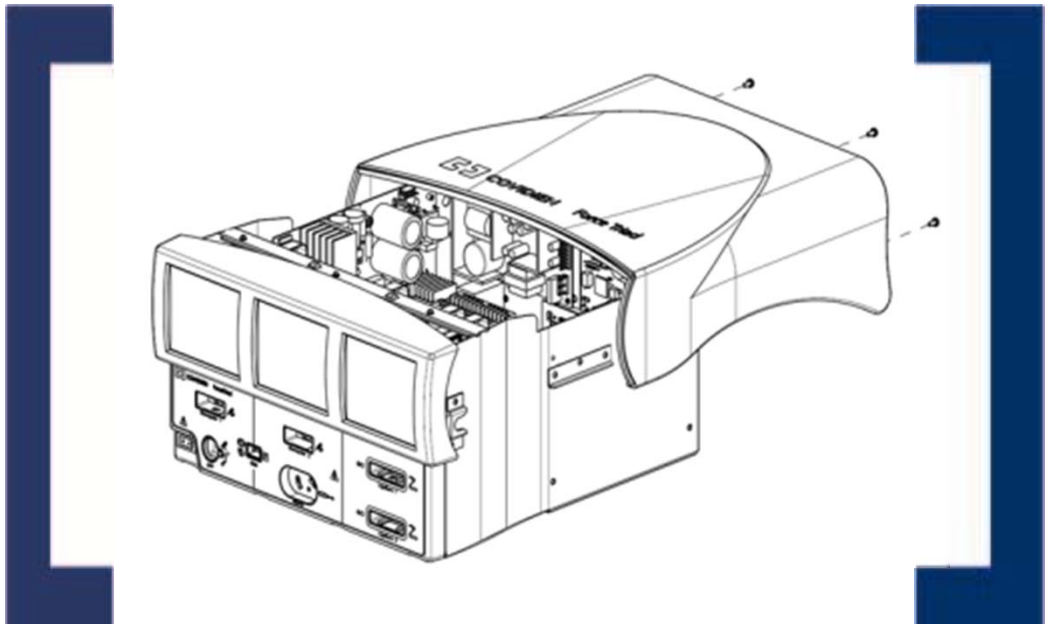
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E310 - ERR_NR_RDM_INVALID_FIELD_LIST

he E310 error code is designated and issued signify that the system has generated an ror due to an invalid field list signal enerated by the remote controller.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Displays
- Displays Cables
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

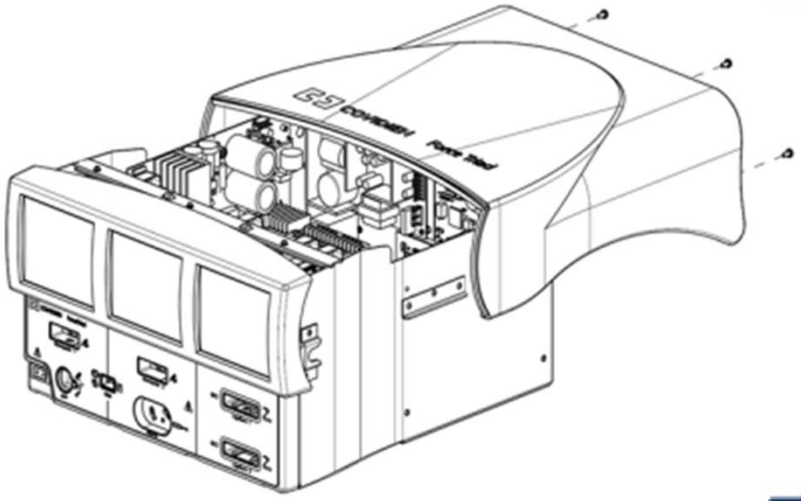
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

E311 - ERR_NR_INVALID_RF_HDW_CONFIG

he E311 error code is designated and issued signify that the system has generated an ror due to the HOST receiving a combination hardware versions that are invalid.

ON-COMPONENT ACTIONS
- Power cycling the system
- Performing a full recalibration

EADING COMPONENT REPLACEMENTS
- Controller Board



NON-COMPONENT ACTIONS INSTRUCTION

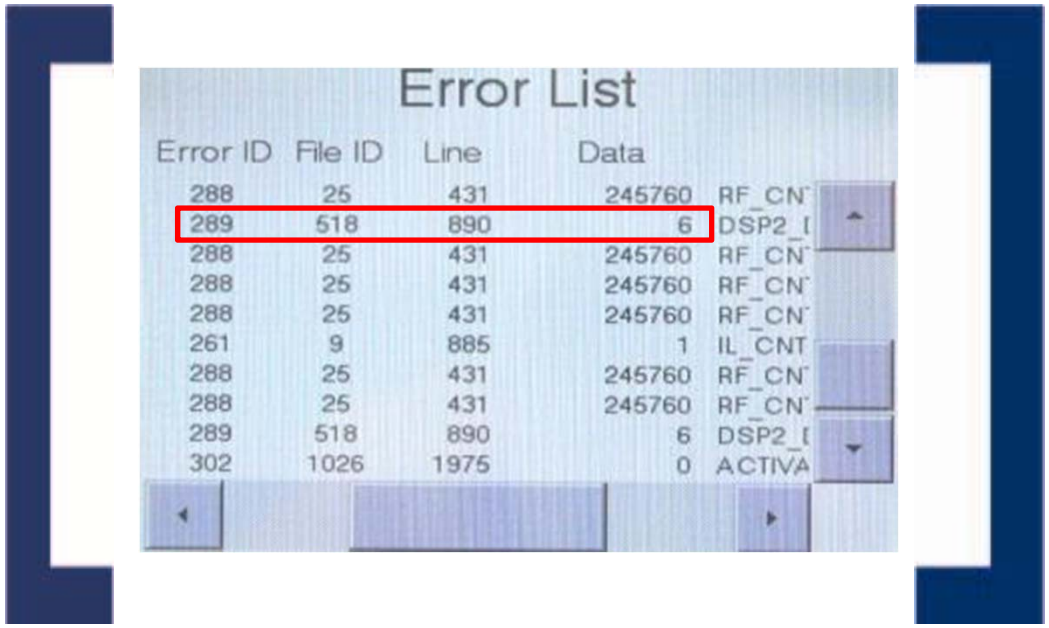
1. Power Cycle the unit and allow the system to perform the self-test.
2. Remove the cover to the ForceTriad system and inspect the system boards ensuring that the boards are properly seated within the unit and that all cables are also securely connected.
3. Perform a level 6 calibration as outlined in the Calibration Section.

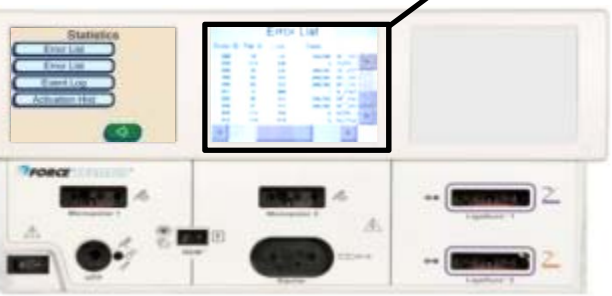
E287 & E289 Additional Troubleshooting

rror codes E287 & E289 can have additional formation about the true root cause of the ilure listed in the Error List.

ick the on the right screen of the rceTriad system. Select "Service"→ tatistics" → "Error List".

n the Error List, locate the most recent Error ode ("Error ID"). For E287 & E289, the formation in the "Data" column can help to olate the true issue. Using the table below nd the information listed in the "Data" olumn, you can help to isolate the root cause one of two boards.





E287 & E289 Fault Isolation	
Data Code	Likely Issue
1 – Voltage Issue	Controller Board
2 – Current Issue	Controller Board
3 – Power Average Issue	Controller Board
5 – Leakage Issue	RF Board
6 – Phase Issue	RF Board

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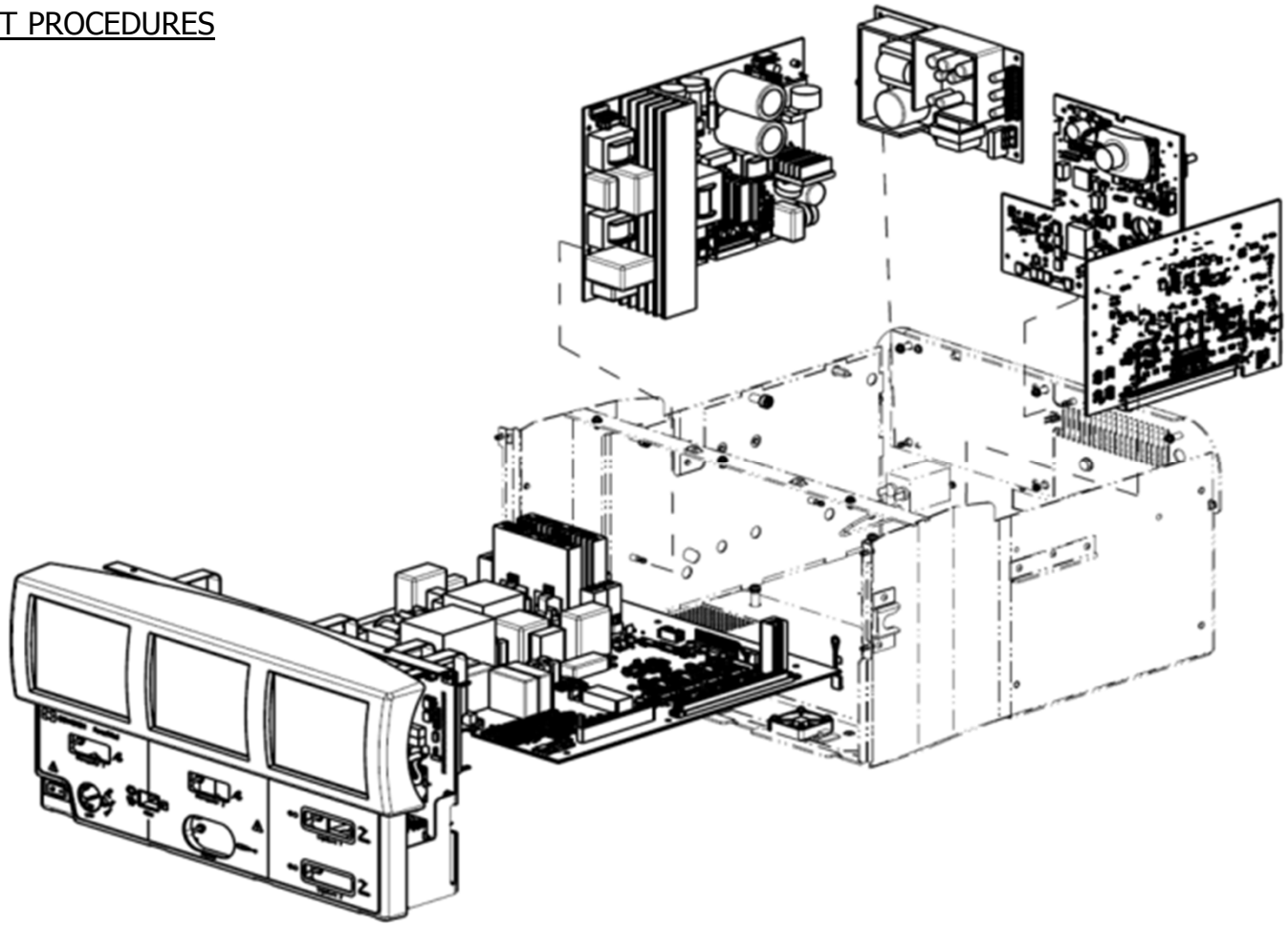
Basic System Service

l basic system service can be accomplished with a #2 Phillips screwdriver, an anti-static wrist strap, a calibration kit, nd a simple workspace. The outlined service components below are statistically the leading system repair mponents across all system failures. Each error code a system may give you has its own unique, higher probability mponents and components should be replaced as outlined in the troubleshooting section of this guide.

OMPONENT REPLACEMENT PROCEDURES

- Controller Board
- RF Board
- HVDC Board
- LVPS
- Steering Relay Board
- System Displays
- Display Cables
- System Scanners
- Scanner Cables
- Foot Switch Board
- System Fans
- Display Inverter



Replacing the Controller Board

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

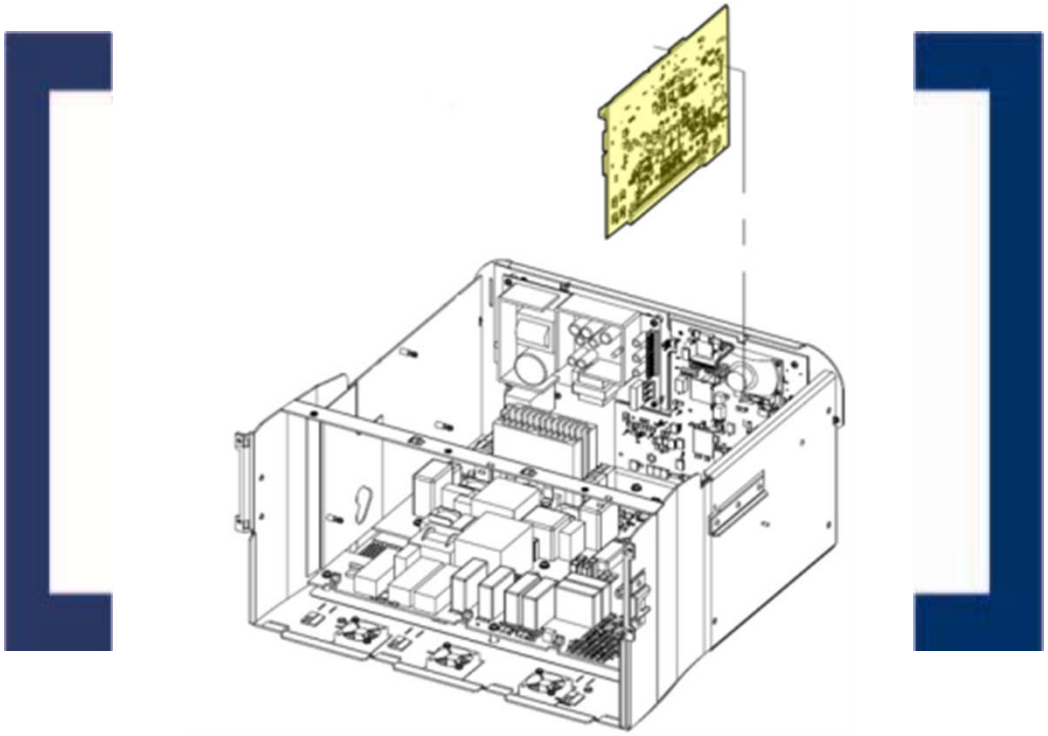
Performing the service mentioned below requires a level 6 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE CONTROLLER BOARD

1. Remove the cover to the ForceTriad system.
2. Remove the single mounting screw with a #2 Phillips screwdriver.
3. Remove the cable assemblies and Ethernet cable from the board.
4. Carefully remove the board and replace with new board.
5. Reconnect all cable assemblies, Ethernet cable, and mounting screw.
6. Perform a level 6 calibration as outlined in the Calibration Section.
7. Contact customer service with your system serial number & request a serial number packet at: valleylab.technicalservice@covidien.com.
8. Once received, connect the system to Valleylab Exchange for upload.

Replacing the RF Board

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

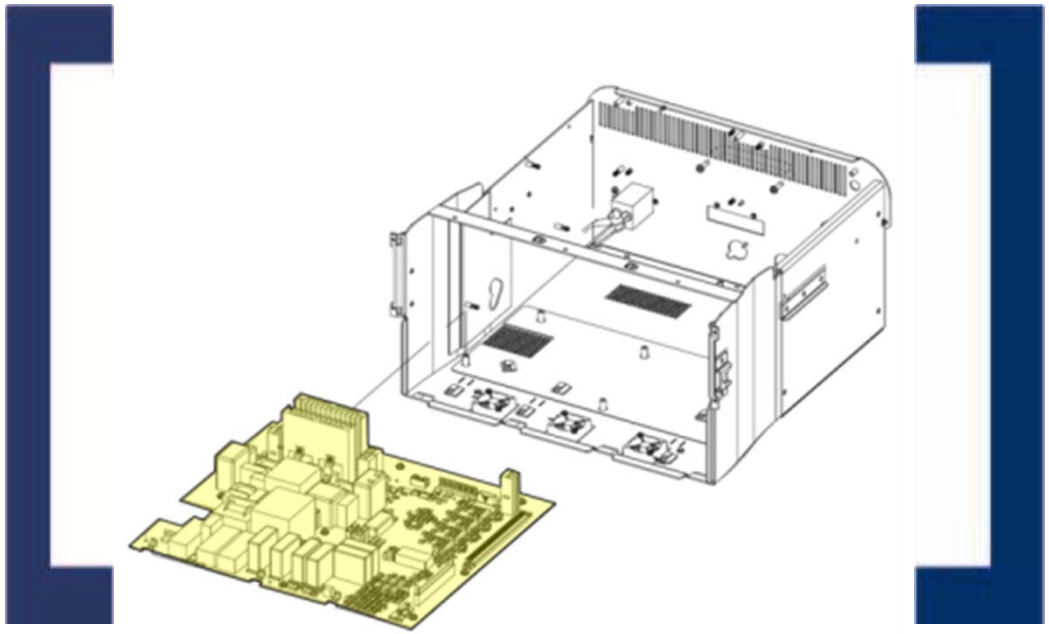
Performing the service mentioned below requires a level 5 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE RF BOARD

1. Remove the cover to the ForceTriad system.
2. Remove the Controller Board, HVDC Board, & Front Panel Assembly in accordance with the Service Manual.
3. Remove the cable assemblies from the board.
4. Remove nine securing screws holding the board to the chassis.
5. Carefully remove the board and replace with new board.
6. Reconnect all cable assemblies, replace the mounting screws, and reinstall the three previously removed items.
7. Perform a level 5 calibration as outlined in the Calibration Section.

Replacing the HVDC Board

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

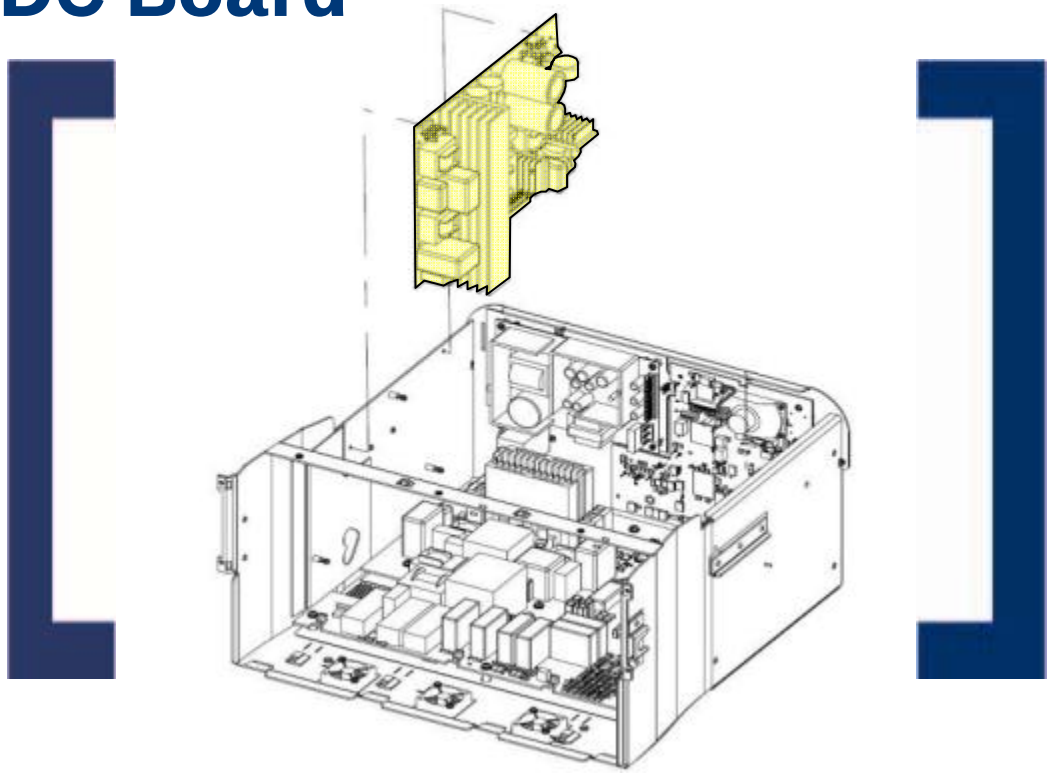
Performing the service mentioned below equires a level 4 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE HVDC BOARD

1. Remove the cover to the ForceTriad system.
2. Remove the cable assemblies from the board.
3. Remove the screws holding the board to the chassis.
4. Carefully remove the board and replace with new board.
5. Reconnect all cable assemblies and replace the mounting screws.
6. Perform a level 4 calibration as outlined in the Calibration Section.

Replacing the Low Voltage Power Supply

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

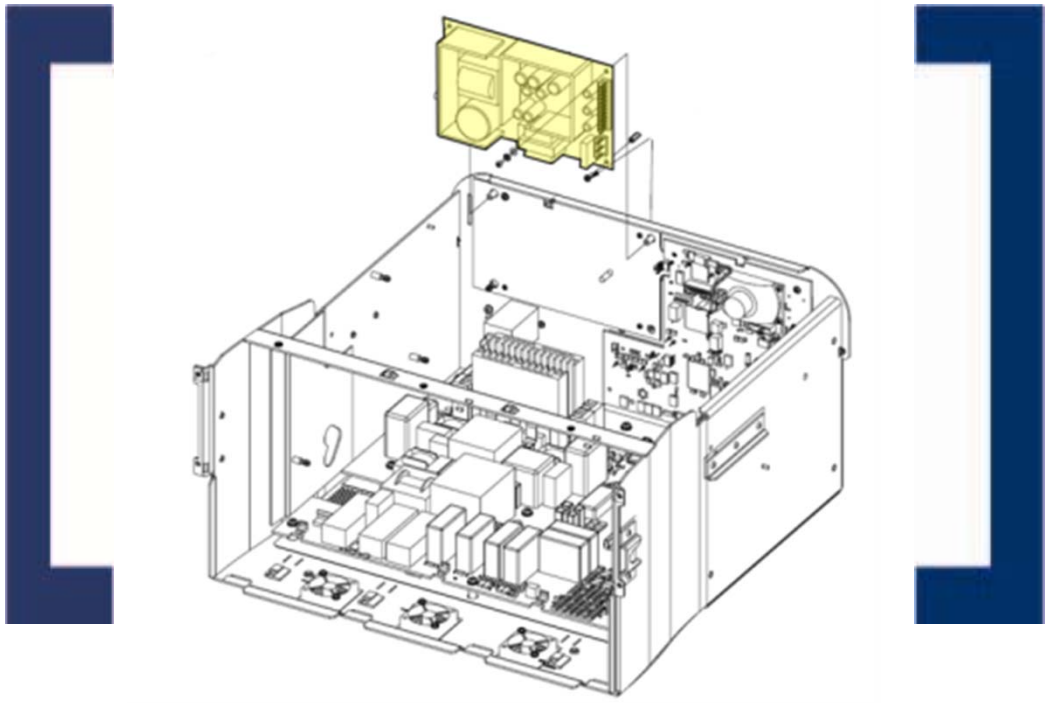
Performing the service mentioned below equires a level 0 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE LVPS

1. Remove the cover to the ForceTriad system.
2. Remove the three mounting screws holding the board to the chassis.
3. Remove the cable assemblies from the board.
4. Carefully remove the board and replace with new board.
5. Reconnect all cable assemblies and replace the three mounting screws ensuring the nylon screw is mounted on the lower right corner.
6. Perform a level 0 calibration as outlined in the Calibration Section.

Replacing the Steering Relay Board

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

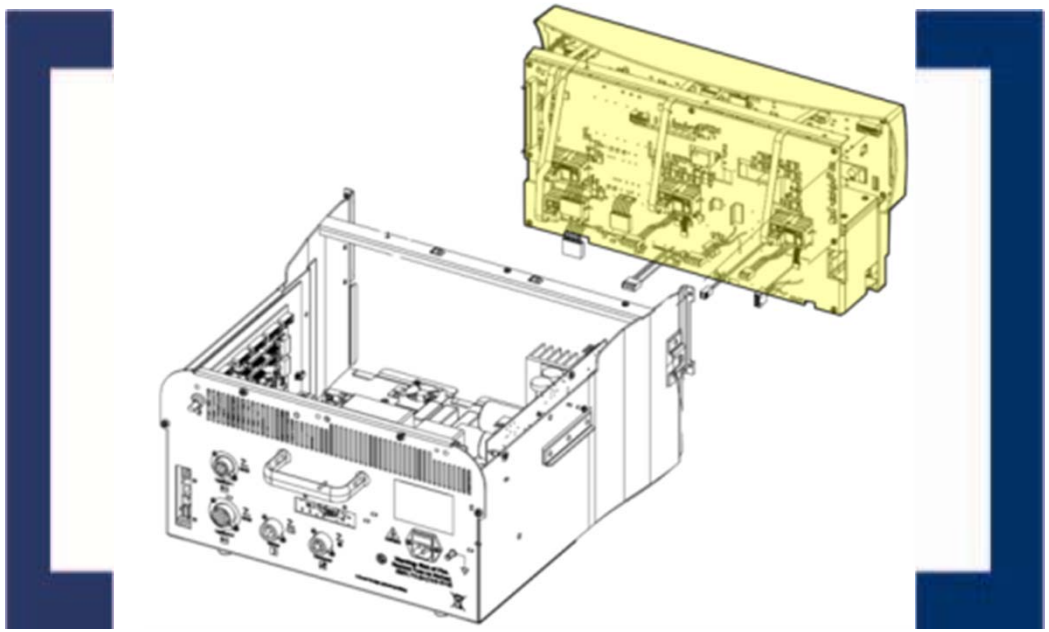
Performing the service mentioned below equires a level 5 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE STEERING RELAY BOARD

1. Remove the cover to the ForceTriad system.
2. Remove the Front Panel assembly.
3. Remove the cable assemblies from the board.
4. Remove the four mounting screws holding the board to the chassis.
5. Carefully remove the board and replace with new board.
6. Reconnect all cable assemblies, replace the four mounting screws, and re-install the Front Panel Assembly.
7. Perform a level 5 calibration as outlined in the Calibration Section.

Replacing the System Displays

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

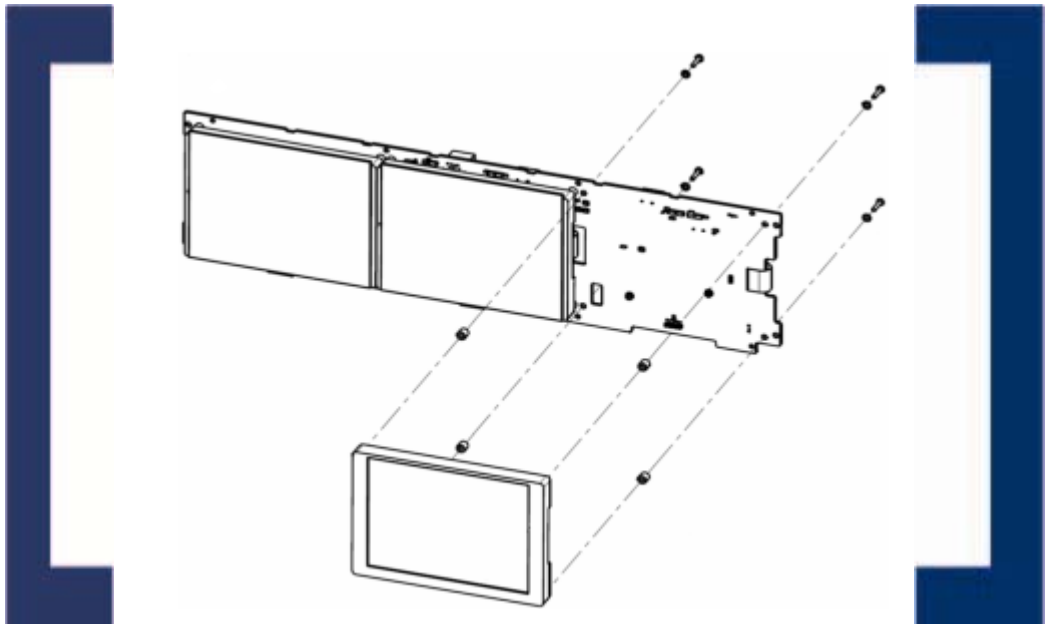
Performing the service mentioned below requires a level 3 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE DISPLAYS

1. Remove the cover to the ForceTriad system.
2. Remove the Front Panel assembly.
3. Remove the Steering Relay Board.
4. Remove the four mounting screws holding the display to the housing.
5. Carefully remove the display and replace with new display.
6. Replace the four mounting screws, re-install the Steering Relay board, and re-install the Front Panel Assembly.
7. Perform a level 3 calibration as outlined in the Calibration Section.

Replacing the System Display Cables

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

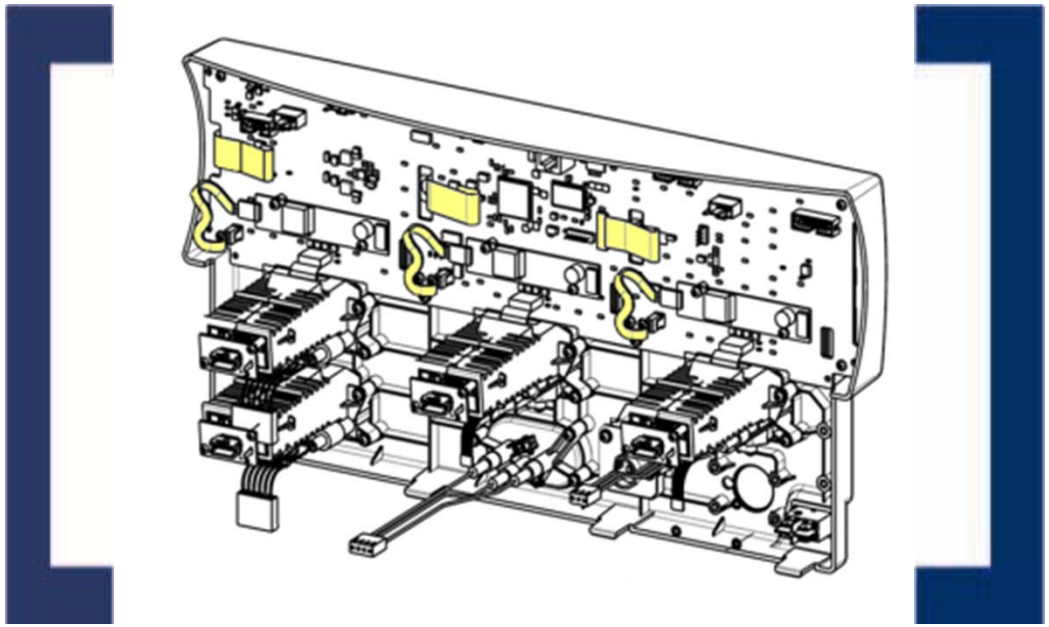
Performing the service mentioned below requires a level 3 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE DISPLAY CABLES

1. Remove the cover to the ForceTriad system.
2. Remove the Front Panel Assembly and Steering Relay board.
3. Carefully remove the display cables and replace with new display cables.
4. Re-install the Front Panel Assembly, Steering Relay board, and replace the cover.
5. Perform a level 3 calibration as outlined in the Calibration Section.

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Replacing the System Scanners

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

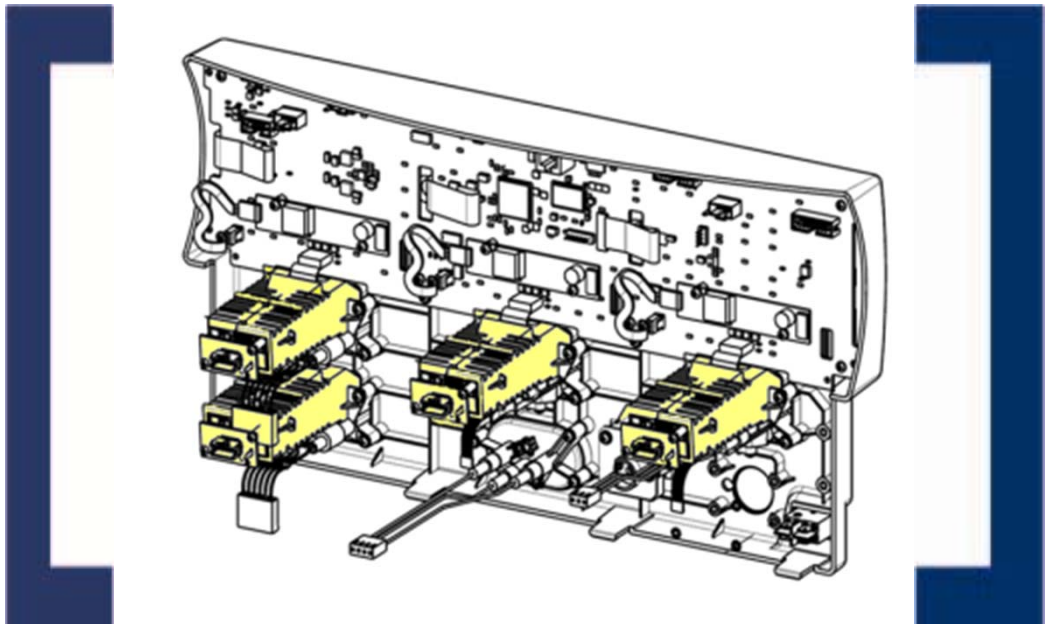
Performing the service mentioned below requires a level 1 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE SCANNERS

1. Remove the cover to the ForceTriad system.
2. Remove the Front Panel Assembly.
3. Remove the Steering Relay Board.
4. Remove the two mounting screws holding the scanner to the housing.
5. Carefully remove the scanner and replace with new scanner.
6. Replace the two mounting screws, re-install the Steering Relay board, and re-install the Front Panel Assembly.
7. Perform a level 1 calibration as outlined in the Calibration Section.

Replacing the System Scanner Cables

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

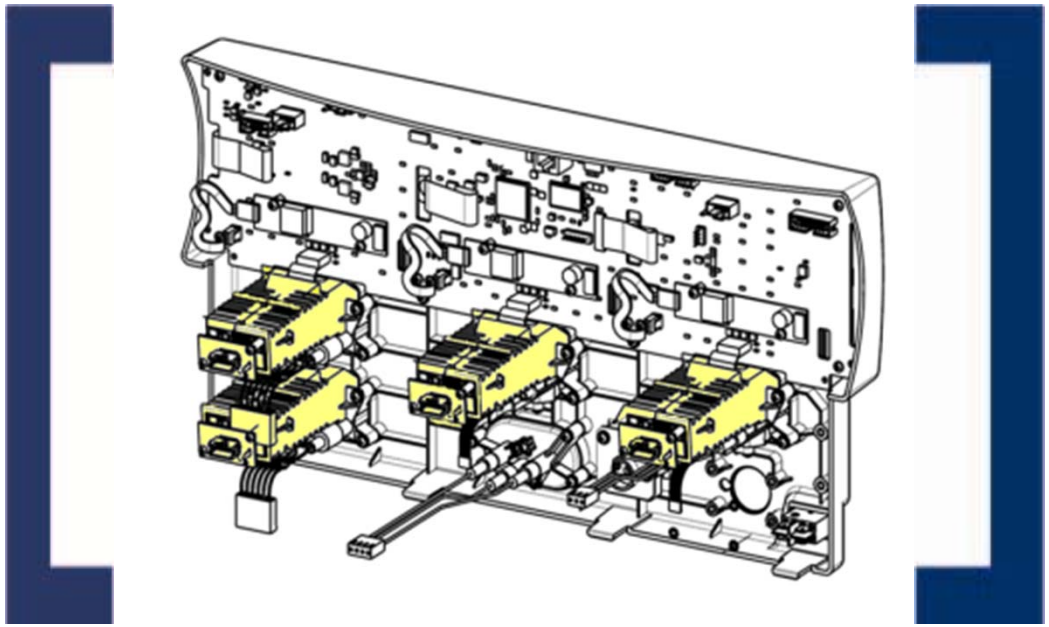
Performing the service mentioned below requires a level 1 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE SCANNER CABLES

1. Remove the cover to the ForceTriad system.
2. Remove the Front Panel Assembly.
3. Carefully remove the scanner cables noting that each cable has two connectors on each end of the ribbon cable. Replace with new scanner cables.
4. Re-install the Front Panel Assembly and replace the cover.
5. Perform a level 1 calibration as outlined in the Calibration Section.

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Replacing the System Foot Switch Board

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

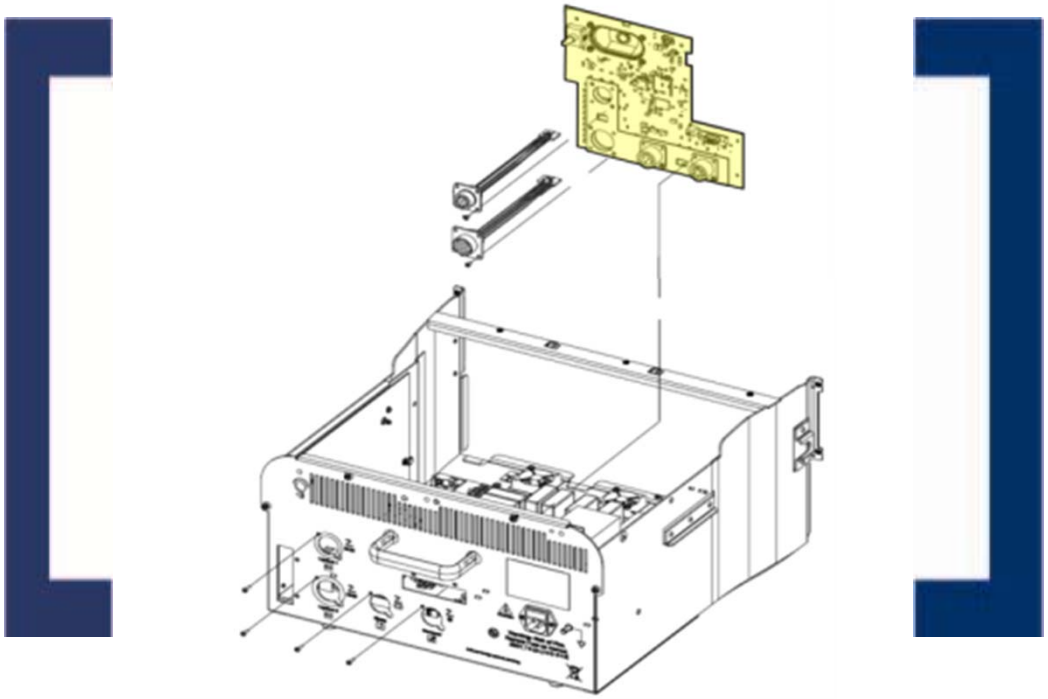
Performing the service mentioned below requires a level 2 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE FOOT SWITCH BOARD

1. Remove the cover to the ForceTriad system.
2. Remove the cable assemblies from the board.
3. Remove the six mounting screws holding the board to the chassis.
4. Carefully remove the board and replace with new board.
5. Replace the six mounting screws and reconnect the cable assemblies.
6. Perform a level 2 calibration as outlined in the Calibration Section.

Replacing the System Fans

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

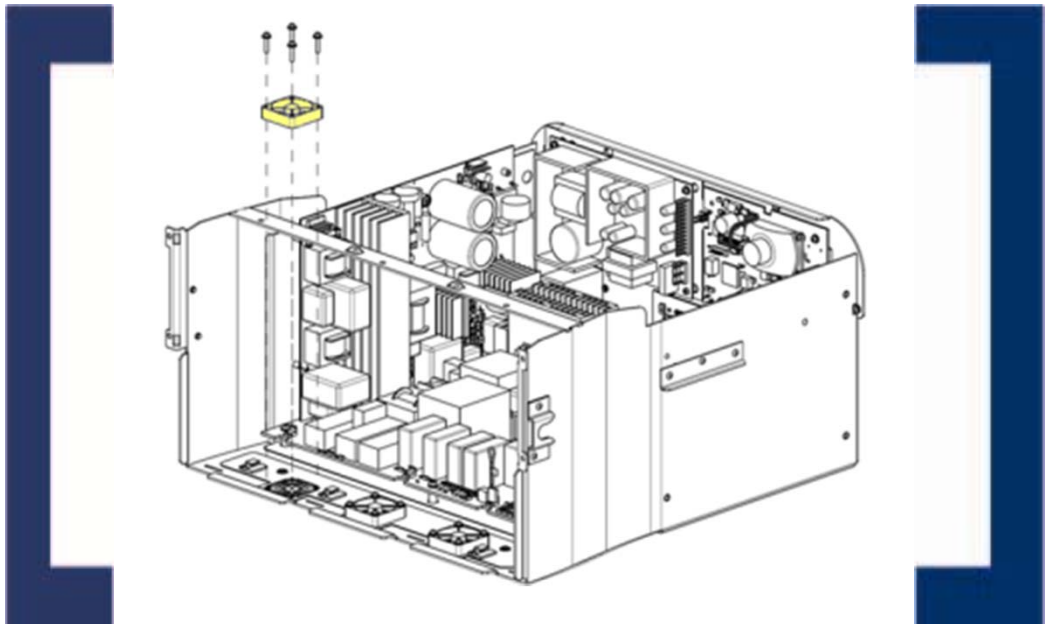
Performing the service mentioned below equires a level 0 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE SYSTEM FANS

1. Remove the cover to the ForceTriad system.
2. Remove the Front Panel Assembly and RF Board.
3. Remove the mounting screws holding the fan(s) to the housing.
4. Remove the fan(s) and replace with new fan(s).
5. Replace the mounting screws, re-install the RF board, and re-install the Front Panel Assembly.
6. Perform a level 0 calibration as outlined in the Calibration Section.

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Replacing the System Fuses

EQUIPMENT REQUIRED

#1 Flathead Screwdriver

CALIBRATION REQUIREMENT

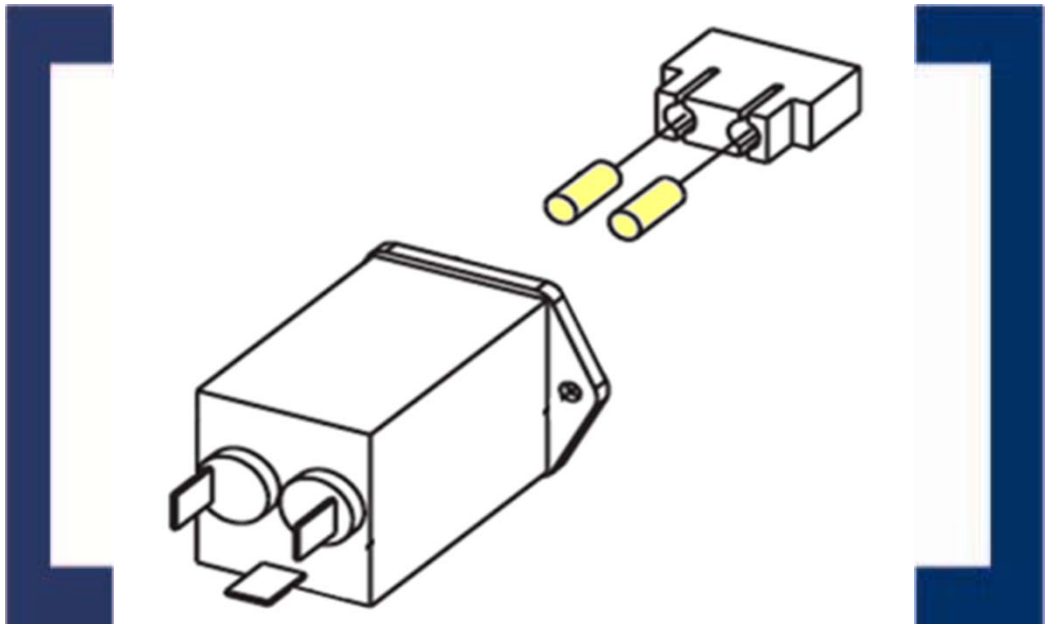
Performing the service mentioned below requires a level 0 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE SYSTEM FUSES

1. Remove the fuse holder using the flathead screwdriver.
2. Remove the fuses from the holder.
3. Replace the bad fuses as needed.
4. Reinstall the fuse holder into the socket.
5. Perform a level 0 calibration as outlined in the Calibration Section.

Replacing the System Power Cable

EQUIPMENT REQUIRED

None

CALIBRATION REQUIREMENT

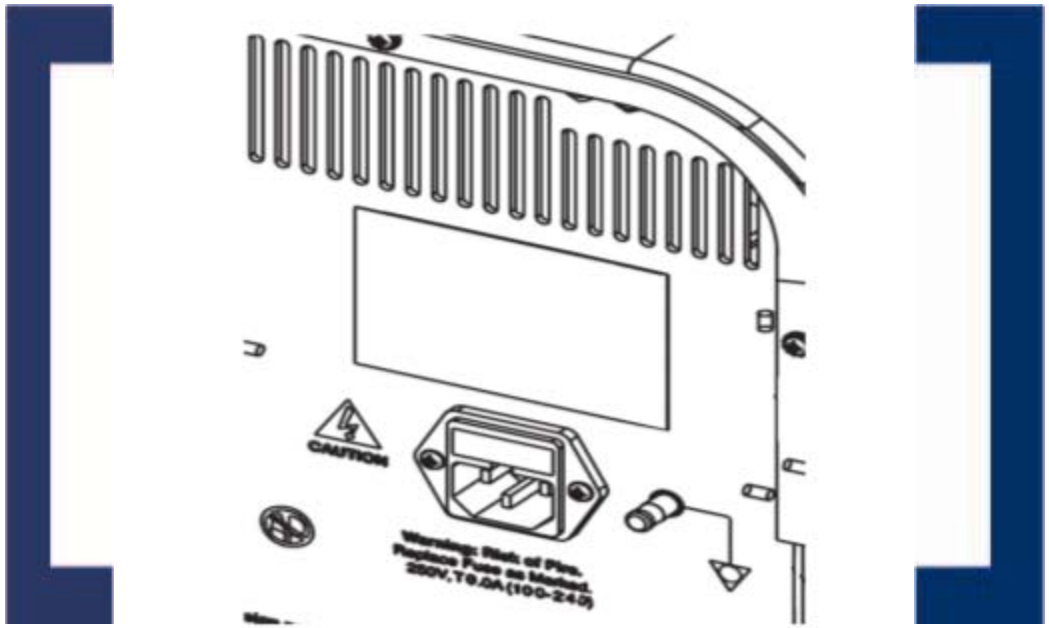
Performing the service mentioned below requires a level 0 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE SYSTEM POWER CABLE

1. Remove power from the unit via the power switch in the front of the system.
2. Remove the existing power cable from the unit.
3. Replace the power cable.
4. Reinstall the power cable into the unit.
5. Perform a level 0 calibration as outlined in the Calibration Section.

Replacing the Display Inverter

EQUIPMENT REQUIRED

#2 Phillips Screwdriver

CALIBRATION REQUIREMENT

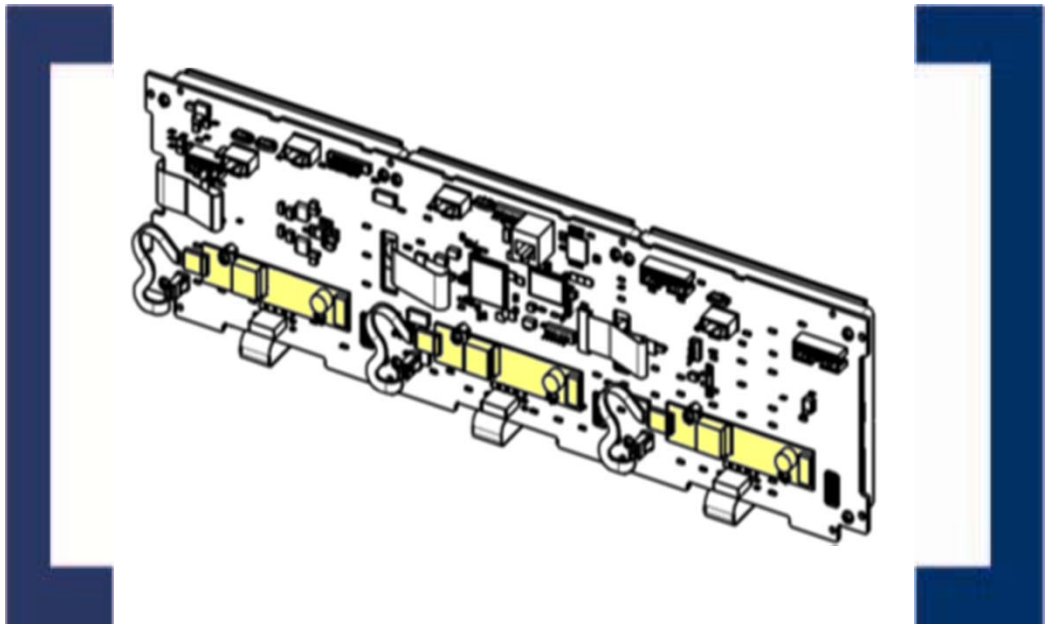
Performing the service mentioned below requires a level 3 calibration.

WARNING

Electric Shock Hazard
To allow stored energy to dissipate after power is disconnected; wait at least five minutes before replacing parts.

CAUTION

The generator contains electrostatic-sensitive components. When repairing the generator, work at a static-control workstation. Wear a grounding strap when handling electrostatic-sensitive components, except when working on an energized generator. Handle PCBAs by their non-conductive edges. Use an antistatic container for transport of electrostatic-sensitive components and PCBAs.



REPLACING THE DISPLAY INVERTER

1. Remove power from the unit via the power switch in the front of the system.
2. Remove the Front Panel Assembly & Steering Relay Board.
3. Remove the two cables from the inverter board.
4. Remove the two mounting screws holding the inverter board.
5. Install the new inverter board, screws, and cables.
6. Reinstall the Steering Relay Board and Front Panel Assembly.
7. Perform a level 3 calibration as outlined in the Calibration Section.

Periodic Safety Check

The periodic safety check is designed to inspect the ForceTriad system for proper functionality and to ensure that the safety features of the unit are intact. The following safety checks should be conducted once a year and recorded for future reference. Should the system fail to meet any of the checks and develops an error, refer the Error Code Definition & Troubleshooting section of this guide.

Safety Checks to be Performed

1. Initial Inspection
2. System Self-Check
3. Calibration (if applicable)
4. Low voltage Power Supply (if applicable)
5. Audio Test
6. REM & Autobipolar Test
7. Cross Coupling Test
8. Power Delivery at Receptacle
9. Power Output Test
10. High Frequency Leakage
11. Safety Test & Valleylab Exchange

Preventive Maintenance Check Sheet

Unit Serial Number | Date of Maintenance

Initial Inspection

Rear panel inspection	Accept Y or N
Front panel inspection	Accept Y or N
Footswitch inspection	Accept Y or N
Power cord inspection	Accept Y or N
Internal component inspection	Accept Y or N

System Self-Check

System self-check	Accept Y or N

Calibration (if applicable)

Calibration Level	Complete

Low-Voltage Power Supply (if applicable)

+ 5 VDC	5.00 V to 5.20 V
+12 VDC	11.4 V to 13.2 V
-12 VDC	-12.36 V to -11.64 V

Audio

Tone audible at high and low ranges	Accept Y or N

The entire Preventive Maintenance procedure and checklist can be found in the system service manual with a date code later than 06/2011.

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Customer Feedback

Covidien apologizes for any inconveniences this temporary system error has caused. We appreciate your patience during the correction of this system error. Should you still experience issues and cannot correct the issue, please contact your local Covidien Customer Support member.

Covidien welcomes you to provide feedback for this tool we have created. We welcome your thoughts as to how helpful this information was, where we can improve, what additional information would have been useful, and overall what you think about this tool.

Please feel free to contact one of our customer service/support representatives to make comments by simply clicking on the Covidien logo below. Thank you for your time.

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